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ABSTRACT

Interviews with 108 Navajo children from bilingual first grade classes on Navajo reservations were recorded. Analysis of the interviews focused on phonological, grammatical, and lexical features that show a systematic variation within the speech of individuals or between individuals. Variable features were compared with background factors such as age, sex, geographical provenance, clan membership, and previous educational experience, in order to determine any correlations or effects. In addition, samples of the children's utterances were submitted to a panel of adult Navajo speakers to obtain their judgments on appropriateness and grammaticality of the forms used. Finally, interview data were analyzed to discover possible effects of English bilingualism on the students' competence and proficiency in Navajo. Analysis was also carried out on the English data to determine interference and order of acquisition of selected features. (Author/JB)

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SYNCHRONIC VARIATION IN NAVAJO: REGIONAL, SOCIAL, AND DEVELOPMENTAL EVIDENCE FROM CHILD LANGUAGE

Final Project Report
National Science Foundation Grant BNS-7905762
June 1, 1979 - May 31, 1980

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ABSTRACT

This report presents a description and analysis of tape recorded interviews with 108 Navajo children from bilingual first grade classes in four Bureau of Indian Affairs schools on the Navajo reservation. The interviews, which were carried out in 1970-1971, were conducted in Navajo and English by native Navajo speakers, and were designed to secure data on the children's language development and usage in both their first and second languages. The original intent of the present study was to transcribe and analyze only the students' Navajo interviews, but the degree of interaction between the acquisition of Navajo and English made a complementary analysis of the English data mandatory. All of the original tape recordings along with transcriptions are being archived in the Navajo Research Center being established by Diné Bi'ólta' (the Navajo Education Association).

The analysis focused on phonological, grammatical, and lexical features elicited in the interviews which show a systematic variation within the speech of individuals or between individuals. Variation has been little studied in American Indian languages, but it has been recorded historically in Navajo and other Apachean languages, and is important to examine for the light it sheds both on the origins of the Navajo and Apache, and on the process of children's language learning and language loss. Variable features were compared with background factors such as age, sex, geographical provenience, clan membership, and previous educational experience in order to determine any correlations or effects. In addition, samples of the children's utterances were submitted to a panel of adult Navajo speakers to obtain their judgments on appropriateness and grammaticality of the forms used. Finally, the interview data were analyzed to discover possible effects of English bilingualism on the students' competence and proficiency in Navajo. As noted, analysis was also carried out on the English data to determine interference and order of acquisition of selected features.

While this report is essentially descriptive in nature, it has profound implications for the education of Navajo children, and ultimately for the viability of the Navajo language. It is severely limited in that no adult norms in the regions surveyed are available for comparative purposes, and in the limited age range of the sample population and lack of more natural data on the children's language. It should thus be considered a pilot project to identify potentially interesting developmental and regional differences as a basis for further investigation.

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Transcription and analysis of the English language interviews were not included in the proposed scope of this study. I would like to express gratitude to James E. Alatis, Dean of the School of Languages and Linguistics at Georgetown University, and to Walter A. Cook, S.J., Chairman of the Department of Linguistics, for providing substancial support beyond the NSF grant so that the scope of research could be extended.

Muriel Saville-Troike
Washington DC
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I. INTRODUCTION

The Navajo tribe is the largest group of American Indians in the United States still preserving its traditional language, culture, and identity.

The Navajos, or diné 'The People', as they call themselves, ranged over a wide area in the Southwest in which they felt they had a sacred origin. They were first hunters, and then adopted farming, stockraising and the crafts of weaving and silver-carving from the other cultures they contacted. Along with other Apachean groups in the area, they raided Pueblo and Spanish settlements, and when the United States acquired New Mexico and Arizona, they fought fiercely to retain their sacred land.

In 1864, the Navajos were starved into submission by troops led by Kit Carson and forced to make The Long Walk of over three hundred miles from their vast homeland to a reservation on the banks of the Rio Pecos called Ft. Sumner. This ordeal is still remembered with bitterness and sorrow. In 1868, the 7,000 Navajos who had survived the confinement at the fort were returned to a portion of their former territory. Their numbers rapidly increased, until by 1883 there were 19,000 (Lind 1968). At present, almost 100,000 Navajos live on a reservation which covers parts of New Mexico, Arizona, and Utah. According to the 1970 cencus, Navajo is the only Native American language which is learned by more children now as a mother tongue than ten or twenty years ago.

Although very few non-Navajos have learned to speak the language fluently, it has received considerable attention from traders, missionaries, teachers, and government officials who have worked with them. The difficulty non-Navajos had learning the language was recognized by the military early in the second world war and Navajo was used as a medium for classified communications. As a secret code it was reportedly never broken by the opposite side.

'Breaking' the Navajo communications code has also been a major challenge to American linguists, and one of the motivations for the present study has been to seek clues for some of the grammatical rules in the language as they are formulated by young native speakers in the process of its acquisition. The language has been recorded and analyzed by such noted Amerindian scholars as Edward Sapir and Harry Hoijer, by non-linguists with a good command of the language, such as Father Berard Haile of St. Michael's Mission, and by such linguistic anthropologists as Herbert Landar, Gladys Reichard, and Robert Young. Navajo has more recently become an area of study and experimentation for psycholinguists examining such phenomena as word associations and the categorization of stimuli (Lenneberg 1967, Landar, Ervin, and Horowitz 1960).

Extensive variation has been recorded in all Athabaskan languages, including Navajo, wherever multiple informants have been utilized, and occasionally even with single informants. In the past, this variation has for the most part either been ignored, regularized, or explained as the result of diffusion, drift, free variation, or idiosyncratic differences. The basic hypothesis of the present research has been that attested variation in Navajo is significant, and that an understanding of it can provide insights into the history of Navajo, the process of Navajo language acquisition, and perhaps the nature of variation itself. As an initial step toward achieving such an understanding, this pilot study was undertaken with the following objectives:

1. To ascertain the type and extent of phonological, lexical, and syntactic variation in a comparable corpus of data from a sample of first grade Navajo students from four sites on the Navajo reservation.

2. To determine, on the basis of comparisons with individual background information obtained on the subjects, what the possible association of particular linguistic variables may be with geographic, social, or developmental factors.

3. To relate the findings to previous research on Navajo child language and historically-attested variation in Navajo, in order to determine to the extent possible the sources and directions of change of the variation.

4. To examine possible effects of English bilingualism on the semantic, grammatical, and phonological elements of Navajo for which comparable data are available within the corpus, and to collect and analyze examples of code-switching found in the interviews.

Until recently, variation in language has been of little theoretical interest in linguistics, and has been subordinated to a concern for the discovery of regular structural patterns or processes, or relegated to a position outside the scope of linguistics altogether. Since the work of Fisher and Labov, however, variation has become an object of study which, it is now realized, can reveal a great deal about social-communicative differences and the microprocesses of linguistic change. Much of the research to date has been focused on English or other European languages, but little has been done in American Indian languages, perhaps in part because work on most of these languages remains at the initial level of basic description. Navajo, as one of the better known and studied North American languages, with some time-depth for written documentation and a large number of close relatives in the Athabaskan family, offers a useful opportunity to examine for types and nature of variation, and a testing ground for possible hypotheses regarding variation and language change.

Previous research by the principal investigator has revealed considerable evidence of historical variation in Navajo during the 19th century. Ironically, however, the regularizing requirements of scientific models of linguistic description have obscured the existence of variation in the modern period. It was expected that the present study would be able to provide information on systematic variation which is reliable and representative of the population sampled. Such information can, when compared with the historical data, give a clearer picture of the present status and distribution of earlier attested variation, and perhaps indicate directions of change.

It was further expected that this study would make a contribution to the definition of norms for language development in Navajo, and factors affecting it. Since the data were collected by means of standardized structured interviews, the speech samples elicited are in general closely comparable, although more natural language usage has yet to be described.

Recent research which has suggested that speakers of subordinated languages may experience 'subtractive bilingualism', which makes the analysis of the effect of English bilingualism on Navajo of considerable interest. The size of the sample and the availability of home language use information makes it possible to relate such effects with some confidence.

Relation to other studies

There has probably been more published about the Navajo language than that of any other indigenous American group. There are dictionaries (Franciscan Fathers 1910, 1912; Haile 1950-1951; Young and Morgan 1943, 1980), grammars (Haile 1926; Young and Morgan 1943, 1980), and numerous articles concerning its history, structure, and genetic relationships (see Brugge, Correl, and Watson 1967, Kari 1973, and Krauss 1980 for extensive bibliographic listings). In spite of this bulk of descriptive data, however, there is a paucity of information published by linguists which makes any attempt to account for -- or even report -- variability in the language. Notable exceptions are Reichard (1945) and Landar (1960, 1961).

Past descriptions of Navajo, whether structuralist or transformational, have tended to present a system of formal oppositions, structures, and processes which were abstracted from the supposed vagaries of individual performance. In recent years, linguists have begun to examine linguistic performance itself, discovering unexpected systematic regularities, as well as ways to accomodate variation within linguistic theory and analysis. Most of the studies to date have examined variation in the languages of socially complex societies, such as English, French, and Spanish, and have found interesting relations between this variation and factors of style, sex, age, and social class. Such observations clearly relate to the broader longitutinal question of how linguistic changes arise and spread, and should ultimately give us greater insight into the operations of these processes.

A major limitation on most of the research reported to date has been lack of information on the individuals whose speech has been transcribed, including their age, place of birth, other language influences, and social group membership. While the Navajo have never had a highly stratified society, such factors as clan membership and residence patterns undoubtedly affect communicative frecuency, and thus are likely to be important in accounting for variability, and the transmission and spread of variable features. There is a need, therefore, to examine the occurrence of variable elements previously identified from historical records, in contemporary data of known provenience, so that a better understanding of regional and social distribution can be gained, and more reliable information obtained on types of variation and their relative frequency.

Research on Navajo child language

Two previous research projects carried out as part of the University of New Mexico Reading Study directed by Bernard Spolsky provide extensive data on certain aspects of Navajo child language. The first project (Spolsky 1970, 1971) was a language census in 1969 and 1970 to determine children's relative proficiency in Navajo and English at the time of school entry. The 1970 census covered 3,653 Navajo children, or an estimated 79% of those who were six years old in that year. Because this sample happened to include all of the subjects who were recorded for the purpose of this analysis, the representative nature of the sample for the sample for the present study can be claimed with far greater reliability than would otherwise be possible. On a scale of 5 to 1 (with 5 indicating Navajo competence only and 1 English only), the mean 'language score' of all six year olds surveyed in the UNM study was 3.99; the mean scores of six year olds in the four sites from which data were

collected for the present study were as follows: Cottonwood 4.14, Greasewood 3.87, Sanostee 4.30, and Toadlena 4.09. These scores reported by the UNM study represent judgments made by teachers, most of whom did not speak or understand Navajo, though bilingual judges were used for validation. No actual linguistic data were reported.

The second UNM research project (Spolsky, Holm and Embry 1971) involved 22 adult Navajo interviewers in conversation with over 200 six year old Navajo children. There was no analysis of the data beyond a count of vocabulary items, but even this raises interesting questions which are relevant to the present study. Of the total vocabulary (3102 items collected from adults and 5605 from children), only 14% was common to both adults and children. This small overlap is perhaps owing to the definition of 'word' which was used for the purposes of computer processing: e.g., bighan 'his house', bighanidi 'at his house', and shighan 'my house' were all counted as separate words. The 14% is thus not necessarily an indication of different vocabulary items used by adults vs. children, but does suggest that there are extensive differences in the structures used by adults and children at a morphological level. Description of such developmental differences would require much more complex analytic procedures than those which were used in the study. All English words which occurred in the interview data were simply tabulated as 'loan words', whether they appeared as single lexical units embedded in Navajo utterances or within English phrases (Holm, Holm, and Spolsky 1971). No attempt was made in that study to describe code-switching or syntax, and phonological data were normalized in the transcription process, making information on variation irretrievable from the computerized corpus.

As a result of a workshop for teachers of Navajo students, a collection of Navajo Language Acquisition Observations (Diné Biolta' Association 1973) has been published. Regrettably, there is little direct information included on the language forms which were heard, but this is potentially an interesting data source on the perception of children's language use (age 1-17 years) by adult Navajo speakers. Code-mixing of English and Navajo is reported even for two and three year olds, and several references are made to 'baby talk' and 'childish talk' by older children. Unfortunately, little specific indication is given of what linguistic behaviors are being identified with these labels.

Further evidence that Navajo children use forms which differ from adult language norms appears from comments made by Navajo parents and teachers. Even teen agers who have been in boarding school and not been hearing adult language spoken in the home are said to speak 'Baby Navajo', and may never acquire what Navajo speakers consider full adult competence in the language. Additionally, the investigator has attempted to elicit complex verbal forms from eleven and twelve year old Navajo informants who use only Navajo at home while attending day school, and has been told the forms are still 'too hard to say right'. While it takes at least ten years for a child learning English to control all of the basic syntactic patterns (Chomsky 1969) and even longer for a child learning a heavily inflected language like Russian (Slobin 1966), the morphological complexities of Navajo may well require twelve to fifteen years for the acquisition of adult-like control. While the complexities of Navajo verb forms have long been recognized, there have been no published

data relating these complexities to child language acquisition or variability in adult usage. Variable features in child language which can be shown to be developmental in nature might well be identified as instances of incomplete language learning when they occur in the speech of adults, and if widespread, might be evidence of morphological simplification in progress.

The Carroll and Casagrande (1959) finding that Navajo speaking children are more likely than English speaking Navajo children to sort objects on the basis of form (presumably because of the influence of the classificatory system in the verbal structures) provides evidence for children's ability to apply appropriate classificatory concepts even though they may not yet have productive linguistic competence in these structures. While the Ervin-Tripp and Landar (1963) study on Navajo word-associations did not include children, it is interesting for the evidence it provides of variability of responses for Navajo items as opposed to English (median commonalty for Navajo was 17%, vs. 45% for English).

Ervin-Tripp's (1961) study of semantic influence from English in Navajo color naming is relevant to the present study, although no children were included in her sample. With an age range from seventeen to seventy, Ervin-Tripp reports that younger Navajos do not know the word tatł'id (using dootł'izh instead), and that among the Navajo-dominant bilinguals there is significantly less variability of translations of 'green' than among the Navajo monolinguals. The present study includes elicitation of color terms, and considerable variability in the terms used by children was also expected.

There have been numerous studies of the influence of Navajo on the English used by Navajos (e.g. Mosser and Motylewski 1939, Wall 1971, Cook and Sharp 1966, Young 1968, Saville 1969, Pedtke and Werner 1969), but none on the influence of English on Navajo except for the count of English 'loan words' (Holm, Holm, and Spolsky 1971) cited above. The corpus for that study evidently also contains data on code-switching, but no linguistic analysis of that phenomenon in English and Navajo has been published to date.

Context of Data Collection

The Bureau of Indian Affairs first implemented bilingual education in Navajo and English at the kindergarten level in 1969, and at the first grade level in 1970. The principal investigator for this study was involved in curriculum development and teacher training for that program, and arranged for the collection of language data reported here (cf. Saville, et al 1971).

The general plan of the bilingual program was to begin instruction entirely in the Navajo language, introducing English as a second language during the kindergarten year. Emphasis during that year was to be placed on developing Navajo oral language skills, abstract concepts, and each child's awareness and understanding of self and the immediate environment. Reading and writing skills were added to Navajo language development in the first grade year, along with continued emphasis on the oral language. Lessons in English were in the traditional pattern practice format of ESL, although it was also used as a medium of instruction for mathematics and science. Reading in English was not introduced until the second grade.

First grade classes were in session approximately 5 1/2 hours (or 330 minutes) a day. At the beginning of the first grade year, most instruction was in Navajo, with more taught in English by spring until a near balance

between Navajo and English was reached. The program was not seen as a bridge, using the Navajo language only until the children could move into an all-English program. The intent was that it be

> ... one of the initial phases in an educational program which recognizes that students who can function effectively in both English and Navajo will have a social and academic advantage and ... develop and maintain literacy and fluency in both languages (Saville, et al 1971:2).

The following subjects were to be taught exclusively in Navajo:

> Reading (60 minutes)
> Opening Activities (10 minutes)
> Social Studies (30 minutes)
> Oral Language (30 minutes)

The following were to be taught exclusively in English:

> ESL (30 minutes; 60 minutes in the spring)
> Mathematics (30 minutes)

Science and Health were to be taught in Navajo during the fall semester and English in the spring, Music in both Navajo and English, and the students were to be permitted to use the language of their choice during P.E., recesses, and art activities. The teachers were further instructed that no English should be used during Navajo periods, even while passing out supplies and giving general instructions, and that Navajo should be limited in English periods only to brief explanations, as needed.

All teachers and aides in the program were native speakers of Navajo. There could be no assurance that all students would receive comparable language instruction, but curriculum guides were provided each teacher in the areas of Reading and ESL, plus partial guides for Navajo Oral Language, Social Studies, Science, and Art. Teachers disagreed among themselves about some of the required Navajo terminology, but no consensus was sought as part of this project; they were told to use whatever term was used in their own area.

Although the delayed analysis of the children's language reported here will suggest that even these efforts are probably not adequate if full competence in Navajo is to be developed and maintained, we will also document the regressive effects of prior English-only instruction on the language of older children in the sample.

II. RESEARCH DESIGN

The data which were analyzed consist of tape-recorded interviews with one hundred and eight (108) first grade Navajo students from four Bureau of Indian Affairs schools. Each subject was interviewed in both Navajo and English in September 1970 and again in May 1971 using an interview format and questionnaire developed by the principal investigator. The interviewers were all adult native speakers of Navajo, either teacher or aide in each classroom. Each interview consisted of about 15 minutes of tape-recorded responses, producing a total of about 60 minutes per subject (30 minutes in Navajo and 30 minutes in English) for those present during both testing periods.

The four sites are located on the map on the following page. Sanostee and Toadlena, New Mexico, and Cottonwood and Greasewood, Arizona, are located in the eastern and western areas of the Navajo reservation, respectively, with Cottonwood and Sanostee serving more northerly attendance regions than Greasewood and Toadlena. All except Cottonwood are boarding schools, in which children live in dormitory facilities.

The subjects were all drawn from bilingually taught classes within each school. Although the population studied was not randomly selected from throughout the reservation, the comprehensive survey of six year old children's competence in Navajo and English which was conducted by the University of New Mexico during the same year these data were collected suggests that this sample may be considered 'average' in this respect (Spolsky 1971; data reported under 'Relation to Other Studies' above).

The subjects were shown samples of nine colors and a series of thirty two pictures illustrating various objects, states, and activities in order to elicit comparable lexical and grammatical forms. Some individual differences were expected, and found, in the interpretation of pictures (included as Appendix A), but these were not such as to have an important effect on the data collection process or results. The possible influence of teachers' usage was also anticipated, but with only one exception, the subjects were all drawn from classes with teachers from the same area as the subjects. Most of the lexical items elicited were already known on the basis of other research to exhibit variability either historically or in the present (Saville-Troike 1972 et seq.). The grammatical items were selected to test for locative constructions, classificatory verb forms, plural reference, continuative, completive, and future aspects, noun ordering, and proximate vs. obviative pronominal choice.

Partially as a result of subsequent orthographic standardization, the Navajo spelling in some of the questions is no longer appropriate. The wording and spelling of the items were agreed on in advance by the Navajo interviewers, however, and are presented here in the original form.

Directions Given to Interviewers

a. Interviews should be conducted by bilingual classroom teacher or aide during the first two weeks of school and again near the end of the year. When a child enters school late, interview him during the first week he is enrolled.
b. All interviews must be tape recorded.
c. Keep the forty pictures in the prescribed order for all students.

THE NAVAJO RESERVATION
DATA COLLECTION SITES

Locations of native judges:

A - Piñon
B - Ganado
C - Cudei
D - Newcomb
E - Twin Lakes/Tohatchi
F - Crownpoint
G - Church Rock

d. Use the same questions for each student. These are written below: follow the wording exactly.
e. Interview each student on two different days. Ask the questions in Navajo on one day and English on another. The students should be encouraged to respond in the language the questions are asked in, if they can.
f. No other cues or assistance should be given the students during the interview, but an attempt should be made to keep the atmosphere relaxed and pleasant.
g. At the beginning of each tape, say the name of the school and the current date. Say the name of the child being interviewed before asking questions in either language.

Materials Used

a. A sequence of nine pieces of colored paper taken from standard packs of construction paper and thirty two pictures. All of the pictures were checked in advance with five and six year old English speaking children, but there is no assurance they would be interpreted in the same way by children with different cultural and environmental experiences. Pictures were xeroxed so that each interviewer would have the same set, and so that interviewing could proceed simultaneously at all four sites.
b. Reel-to-reel recorder and magnetic recording tape. Interviewers used recording equipment which they had available to them on site. All were in good working condition, but not standardized for quality of reproduction. All tapes were dubbed onto casettes at the time of this project for transcription.

Content of Interviews

a. Responses to questions asked with pictures 1 through 22 required only the naming of colors and objects. For items 1-9, the interviewer was instructed to ask

Díísh tait'éego naash ch'ąą'? 'What color is this?'

1. Red
2. Yellow
3. Blue
4. Black
5. Brown
6. Green
7. Orange
8. Purple
9. White

For items 10-22, the interviewer was to ask

Díísh haolyé? 'What do you call this?'

10. Circle
11. Square
12. Triangle
13. Horse
14. Cat
15. Tree
16. Chicken
17. Rabbit

18. Mouse
19. Fire
20. Truck
21. Dog
22. Corn

b. Questions 23-26 required the children to express positional relationships. The interviewer was to ask
Ashkíísh háadi sidá? 'Where is the boy (seated)?'
23. Boy in wagon
24. Boy outside (in front of) wagon
25. Boy in back of wagon
26. Boy under table

c. Questions 27-29 required a description of action in progress with different shaped objects. The interviewer was to ask
Ashkíísh ha'át'íí yaa naaghá? 'What is the boy doing?'
27. Boy holding stick
28. Boy eating
29. Boy playing (building) with blocks

d. Questions 30-31 required plural forms. The interviewer was to ask
Ałchíníish ha'át'í yaa naa aash? 'What are the children doing?'
30. Children playing with dolls (boy and girl)
31. Children eating (boy and girl)

e. Questions 32-33 required a description of completed action. The interviewer was to ask
Ashkiish ha'át'í yaa naa ghá ńt'é? 'What has the boy been doing?'
32. Boy finished playing with blocks
33. Boy standing by drum

f. Questions 34-35 required a description of future action with animate and inanimate objects. The interviewer was to ask
Ashkiish ha'át'í yaa ní dii dzá? 'What is the boy going to do?'
34. Boy going to play with blocks
35. Boy going to play with dog

g. Items 36-40 were intended to require children to use longer utterances and provide a brief text for the analysis of free speech. The interviewer was to ask
Díísh tai t'éego naash ch'ą́ą' beeshil holne'? 'Tell me about this picture.' (Freely translated)
36. Family
37. Cats eating and playing
38. Man on horse
39. Drum and doll under table
40. Boy pulling doll in wagon

Demographic Data

The following background information was collected on each subject (in most instances, the teacher was the principal source of the information):

Census number
Place and date of birth
Previous school experience, if any
Number of siblings
Ordinal rank of birth
Birthplace of parents
Clan membership of parents
Language (Navajo or English) spoken at home
Relative frequency of language use (Navajo vs. English)

Procedures for Transcription and Analysis

STAGE I

a. Transcription and Data Arrangement

1. All language data were transcribed from the tapes, both Navajo and English, using phonetic transcription.
2. Pauses were marked, along with places of interviewer prompting or additional questions.
3. Each questionnaire was coded for site, subject, and fall or spring collection date.
4. Each response to items 23-40 was carded and grouped according to question number (i.e. all responses to the same question and picture were filed together).
5. Multiple occurrences of the same response were tabulated.
6. All responses given by two or more subjects to questions 23-40 were listed in a questionnaire for use in obtaining native speaker judgements on their appropriateness and grammaticality. Broad phonetic transcription was used at this point to correspond closely to standard Navajo orthography.

b. Translation and Questionnaire Revision

1. A preliminary English translation of the Navajo data was prepared by the principal investigator.
2. A native Navajo speaker in the Washington, DC area was consulted for assistance with the translation, and for determining which of the lexical and phonological variants listed in the questionnaire made little or no difference, and could be eliminated from the tasks in Stage II.
3. Translation and simplification of the questionnaire was checked further with the consultant in Albuquerque (Robert Young).
4. A final form of the questionnaire was prepared with 325 utterances listed in response to questions 23-40, plus a few of the lexical items (see Appendix B).

STAGE II

c. Selection and Utilization of Navajo Language Judges

1. Seven Navajo adults were asked to serve as Navajo Language Judges. The letters on the map on p. 8 indicate the place where each was raised. Criteria for selection were:
   a) Fluent speaker of Navajo;
   b) Literate in Navajo; and
   c) Experienced in working with young children.
2. Each of the judges was asked to evaluate all of the transcribed responses on the questionnaire according to whether they were:
   a) Acceptable and appropriate if used by an adult speaker of Navajo;
   b) Appropriate for a child but not an adult: 'baby talk'; or
   c) Not acceptable or appropriate for other reasons, and why.
3. One of the judges completed the questionnaire in an interview context, one using only the written form, and the five others met simultaneously with the principal investigator. Each of these five was asked to rate the children's responses according to his or her own opinion, but differences in judgments were discussed at some length during the conference.

4. The judgments of adult speakers were tallied for each response, and those for each question then ordered from most to least acceptable for the group of judges as a whole (see Appendix C).
5. Distribution of native speaker judgments and inter-rater agreement on acceptable utterances were computed, and are discussed in Chapter IV.

STAGE III

d. Analysis of Vocabulary (responses to items 1-22 in the interview schedule)

1. The frequency and distribution of responses to each item was charted to determine the nature and extent of variability in lexical choice and phonology.
2. Comparison was made of items correctly identified in Navajo and English as one means of assessing language dominance.
3. Any lexical items or pronunciation judged by the adult native speakers to be appropriate for a child but not adult or not acceptable for other reasons were marked as probable developmental variants.
4. English responses to questions asked in Navajo were noted, as well as Navajo responses to questions asked in English.

e. Analysis of Grammatical Structures (responses to items 23-40 in the interview schedule)

1. All responses to each group of questions were formalized and tabulated according to phrase and clause types used, morpheme order within noun and verb phrases, and compounding and conjoining processes.
2. The responses of each child were scored for each morpheme being tested, as described for Navajo and English in the results sections of this report.
3. Data were analyzed for patterning which might be indicative of regional or developmental differences, and for order of acquisition.
4. All utterances which contain both Navajo and English were carded separately. Analysis to determine the nature and extent of code-switching by the subjects in this sample was not included in the scope of this project, but will be forthcoming.
5. A preliminary analysis has been conducted of the interaction between acquisition of Navajo and English, including interference phenomena, and further reports are in preparation.

III. DESCRIPTION OF THE POPULATION

A total of 108 different children were recorded, but not all were present both fall and spring, nor on both the days when Navajo and then English were elicited (see Table I). There were a total of 177 interviews in Navajo (fall and spring), and 170 in English. The population includes 63 males (C 14, G 16, S 18, T 15) and 45 females (C 11, G 8, S 14, T 12).

TABLE I
DISTRIBUTION OF SAMPLE POPULATION

Site	Total Ss	Number of Interviews			
		Fall		Spring	
		Nav	Eng	Nav	Eng
Cottonwood (C)	25	23	24	20	21
Greasewood (G)	24	15	16	23	23
Sanostee (S)	32	27	26	25	25
Toadlena (T)	27	19	10	25	25
Total	108	84	76	93	94

The Bureau of Indian Affairs had specified that only students who had been enrolled in the bilingual kindergartens during 1969-1970 would be enrolled in these bilingual first grades in 1970-1971, but two of the sites also placed some students in the class who had been in a monolingual beginners (B) class the previous year, and one who had already been in a monolingual first grade (F) for a year. The beginners class in BIA schools is an extra year of instruction between kindergarten and first grade, traditionally intended to provide another year of oral English language instruction before reading in English is introduced in first grade. Prior to bilingual education and the introduction of reading in Navajo, therefore, the 'normal' age for first grade enrollment was 7 years, rather than the 6 years expected for the U.S. population in general, and for BIA bilingual first grades.

Because of this demotion, a wider age range was included in the sample than was originally anticipated (see Table II).

TABLE II
AGE OF POPULATION IN SEPTEMBER

Site	Age Range	Mean Age
Cottonwood (C)	5.9 - 6.8	6.3
Greasewood (G)	5.9 - 9.0	6.7
Sanostee (S)	5.0 - 6.8	6.1
Toadlena (T)	5.6 - 8.4	6.9

Tables III through VII indicate individual students' sex, ID number (assigned in random order), age in months as of 9/70, previous school experience, home language use, languages in which interviews were recorded, and clan membership. The following abbreviations are used:

Previous School Experience (PSE)

- H Headstart
- K Kindergarten
- B Beginner
- F First grade

Home Language Use (HLU)

- N Navajo only
- E English only
- Ne Navajo dominant, some English
- nE English dominant, some Navajo

Interviews: Fall (F) and Spring (S)

- X Both Navajo and English
- N Navajo only
- E English only

Clan Membership: Mother's Clan (M) and Father's Clan (F)

1	Tó dích'íi'nii	'Bitter Water People'
2	Kin łichíi'nii	'Red House People'
3	Táchii'nii	'Red Running into the Water People'
4	Naashashí	'Bear Enemies; the Tewa Clan'
5	Hashtł'ishnii	'Mud People'
6	Mą'ii deeshgiizhnii	'Coyote Pass People; the Jemez Clan'
7	Naakaii dine'é	'Mexican Clan'
8	Tótsohnii	'Big Water People'
9	Honágháahnii	'He-walks-around-one People'
10	Tsi'naajinii	(?)
11	Tábąąhá	'Water's Edge People'
12	Kin yaa'áanii	'Towering House People'
13	Tsé ńjíkiní	'Honey Combed Rock People'
14	Áshįįhí	'Salt People'
15	Ta'neeszahnii	'Tangle People'
16	Tó áhání	'Near to Water People'
17	Bįįh bitoodnii	'Deer Spring People'
18	Tł'ízí łání	'Many Goats People'
19	Tó aheedlíinii	'Water-flows-together People'
20	Tó dik'ǫǫzi	(?)

All of the background information was provided by the first grade teachers, based on information from the children's enrollment records and the teachers' personal knowledge about families in their area. Since all teachers and aides for these classes were native Navajo speakers, and all but one recruited from the attendance area in which they were teaching, information on home language use is probably reliable. A blank space in the tables indicates that no information was reported.

As can be seen in the composite student profile (Table VII), at least 16 of the students had already been enrolled in an English-only instructional program for one or more years before attending the bilingual first grades in which data were collected. The great majority came from homes where only Navajo is used, however, and only one was from a family which used only English.

TABLE III

COTTONWOOD SUBJECTS

ID No	Age (Months)	PSE	HLU	Interviews F	Interviews S	Clan Membership Mother's	Clan Membership Father's
Females							
9	80		N	X		10	12
3	79	K	Ne	X	X	16	
6	79	K	N	E	X	3	
25	79	K	Ne	X	X	19	
8	78		N	X	X	1	3
20	78	K	N	X	X	20	10
12	74	K	Ne	X	X	15	18
22	73	K	N	X	X	10	6
26	71		N	X	X	1	18
7	69	K	Ne	X	X	1	15
16	69		N	E	X	6	12
Males							
2	79			X	X		
4	79	K	Ne	X	X	6	12
5	79			X			
14	78	K	Ne	X	X	12	15
11	77		N	X	X	9	17
18	77	K	Ne	X	X	6	10
23	76	K	Ne	X		1	3
1	72	K	N	X		6	16
10	72		N	X	X	13	17
15	72		N	X	X	13	
17	72	K	N	X	X	1	15
24	72	K	Ne	X	X	9	6
19	70	K	Ne	X	X	7	10
13	69	K	N	X	E	10	15

PSE = Previous School Experience
HLU = Home Language Use

TABLE IV

GREASEWOOD SUBJECTS

ID No	Age	PSE	HLU	Interviews F	Interviews S	Clan Membership Mother's	Clan Membership Father's
Females							
21	84		Ne	N	X	11	8
10	79	K	Ne	N	X	2	12
3	78		Ne	E	X	13	2
23	78	K	nE	X	X	1	13
4	77	K	N	N	X	2	7
20	73	K	Ne	N	X	1	10
5	71		Ne	X	X	8	6
18	69	K	Ne		X		6
Males							
24	108	B	N		X	9	2
17	99	B	N		X	9	2
1	88	B	N	X	X	2	12
13	84	B	Ne	X	X	1	12
16	83		Ne	X	X	11	14
14	80	K	N	E	X	2	6
8	79	K	Ne	E	X	6	15
6	79	K	N	X	X	8	2
12	77	K	N	X	X	6	12
15	77	K	Ne	X	X	8	2
2	76		N	X	X	13	1
11	75	K	N	X	X	6	12
22	75	K	N	X			6
19	71	K	Ne	X	X	11	9
7	70	K	N		X	2	12
9	69	K	Ne	E	X	13	12

PSE = Previous School Experience
HLU = Home Language Use

TABLE V

SANOSTEE SUBJECTS

ID No	Age	PSE	HLU	Interviews F	Interviews S	Clan Membership Mother's/Father's
Females						
9	78	K	N	X	X	
13	77	H,K	Ne	X	X	
29	77	K	N	X	X	
31	77	K	N	X	X	
11	76	K	N	X	X	
26	76	K	N	X	X	
10	74	K	N	X	X	
27	73	K	N	X	X	
15	72	H,K	N		X	
4	70	K	nE	X	X	
16	68	K	nE	X	X	
7	66	K	Ne	X		
8	60			X		
21	57			X		
Males						
6	82	K	N	X	X	
14	80	K	N	X		
23	80	K	N		X	
12	78	K	N	X		
18	78	H,K	N		X	
20	78	K	Ne	X	X	
17	77	H,K	N	X	X	
32	77	H,K	N	X	X	
5	76	K	N	X	X	
1	75	K	Ne	X		
3	74	H,K	N	N	X	
25	73	K	N	X	X	
30	72			X	X	
19	71	H,K	N	X		
24	71	K	N		X	
2	69	K	N	X	X	
22	68	K	Ne	X	X	
28	66	K	N		X	

PSE = Previous School Experience

HLU - Home Language Use

TABLE VI

TOADLENA SUBJECTS

ID No	Age	PSE	HLU	Interviews F	Interviews S	Clan Membership Mother's/Father's
Females						
21	100	B	N	E	X	1
23	92				X	
18	83	B	nE	N		
9	80	K	Ne	N	X	3
11	78	B	N	X	X	1
24	77				X	
25	77				X	
16	74	B	nE	N	X	2
8	72	K	Ne	X	X	
7	70	K	nE	X	X	2
2	68	K	E	X	X	5
1	66	K	N	X	X	
Males						
4	94	F	N	N	X	
14	92	K,B	N	N	X	
6	89	K,B	N	N	X	
17	89			X		
20	89	B	N		X	1
22	88		Ne		X	
26	88	B	N		X	
10	84	B	Ne	X	X	
27	82	B	N		X	
13	80	B	Ne	N	X	
15	76	K	Ne	X	X	
3	75	K	Ne	N	X	1
19	74	K	Ne	N	X	
12	73	K	N	N	X	
5	66	K	Ne	X	X	4

PSE = Previous School Experience
HLU = Home Language Use

TABLE VII

COMPOSITE STUDENT PROFILE

	N	Age	PSE H	PSE K	PSE B	PSE F	HLU N	HLU n	HLU E	HLU e
Cottonwood	25	75		16			23			10
Greasewood	24	79		15	4		23	1	1	12
Sanostee	32	73	7	29			27	2	2	5
Toadlena	27	81		12	11	1	19	3	3	9
Total	108	77	7	72	15	1	92	6	6	36

There is no indication from the teachers or from subsequent reading and arithmetic achievement records that any of the students had an abnormally low intelligence level, but no IQ scores are available. One student was excluded from the sample because she did not understand the nature of the interview task and merely repeated the questions after the interviewer, in both Navajo and English. Two others gave no response tothe fall interview, or were inaudible. One student had a speech impediment (judging from the recorded interviews), and was excluded from the phonological analyses.

IV. VARIABILITY IN NATIVE SPEAKER JUDGMENTS

As described in the Research Design (pp. 11-12), seven adult Navajo speakers were asked to evaluate the children's responses as:

A Acceptable and appropriate if used by an adult speaker of Navajo;
B Appropriate for a child but not an adult: 'baby talk'; or
C Not acceptable or appropriate for other reasons, and why.

Given the extent of variability already known to exist in Navajo, it should not have been so surprising that the judges exhibited a very low level of inter-rater reliability, but the five Navajo judges who met together with the investigator--including four who know each other quite well--expressed considerable surprise themselves at the extent of their disagreement, particularly as they disagreed about the meaning of a number of utterances. Out of the 325 utterances submitted for native speaker judgments, there was complete agreement on less than 30% (see Table VIII).

TABLE VIII
DISTRIBUTION OF NATIVE SPEAKER JUDGMENTS
(N = 325)

All judges rated A	24	*7.4%*		
Some judges rated A			191	*58.8%*
All judges rated B	5	*1.5%*		
Some judges rated B			281	*79.8%*
All judges rated C	14	*4.0%*		
Some judges rated C			214	*60.8%*
Total agreement	43	*13.2%*		
Rated both A and C			84	*28.9%*

In general, ratings of 'unacceptable' were given when an utterance had a meaning which was inappropriate for the picture and question, and ratings of 'baby talk' for incorrect tone placement, pronunciation, and morphological forms which did not result in an inappropriate semantic interpretation. Some judges were plainly more flexible in what they considered acceptable than others, as can be seen in the tabulation of individual judge's ratings (Table IX).

TABLE IX
INDIVIDUAL RATINGS

	A	B*	C	D	E	F	G
Total rated A	65	83	76	58	122	119	88
Total rated C	152	40	130	66	74	98	128

*rated fewer responses

Table X indicates the number of responses marked A (or fully acceptable) which coincided for each pair of judges. While this is skewed by the number of responses rated A by each, there does appear to be some regional patterning in their agreement about what responses would be acceptable even from an adult.

TABLE X
INTER-RATER AGREEMENT ON ACCEPTABLE UTTERANCES

	D	A	E	F	G	C	B
D		39	38	47	44	43	32
A			50	56	51	46	37
E				79	52	49	47
F					69	63	51
G						64	40
C							43

The following is a representative tabulation of judgments of responses to question 25 Ashkíísh háadi sidá? 'Where is the boy (seated)?' (See Appendix C for the complete tabulation of judgments).

1. Tsinaabąąs yine'di sidá (12)
   A - A C E F G
   B - D
2. Nǫ'ǫ́ (24)
   A - D E F G
   B - A B C
3. Tsinaabąąs bine'ji sidá (11)
   A - B D E F
   B - G
   C - A C
4. Tsinaabąąs yikéédi (17)
   A - B C F
   B - D E G
   C - A
5. Ashkii tsinaabąąs ikéé'di sidá (1)
   A - B F
   B - C D E G
   C - A
6. Ashkii tsinaabąąs iné'dii sidá (4)
   A - B F
   B - A C D E
   C - G
7. Ashkii tsinaabąąs kéé'di sidá (3)
   A - E
   B - B C D F G
   C - A
8. Tsinaabąąs idéé'di sidá (8)
   A - F
   B - D E G C
   C - A
9. Tsinaabąąs bikéédi sidá (9)
   A - B E F
   B - D
   C - A C G
10. Tsinaabąąs bitsiigo sidá (14)
    A - B D E
    B - F
    C - A C G

11. Kee'di sidá (22)
    A - B
    B - C D E F G
    C - A
12. Ashkii tsinaabąąs bikéé'di sidá (2)
    A - E F
    B - B D
    C - A C G
13. Ashkii tsinaabąąs biné'dzi sidá (5)
    B - A B D E F G
    C - C
14. Tsinaabąąs tsiłgo sidá (15)
    B - B C D E F G
    C - A
15. Iné'di sidá (23)
    A - E
    B - C D G
    C - A F
16. Tsinaabąąs bine'di sidá (7)
    A - B E
    B - D
    C - A C F G
17. Tsinaabąąs bine' (19)
    B - A D E F G
    C - B E
18. Tsinaabąąs kéé' sidá (10)
    B - A B E G
    C - A B
19. Tsinaabąąs ne' sidá (13)
    B - A B E G
    C - C D F
20. Tsinaabąąs bine'dęę' sidá (6)
    A - D
    C - A B C E F G
21. Tsinaabąąs bine' sidá (16)
    B - D F
    C - A C E G
22. Daajígo (22)
    B - B F
    C - A C D E G
23. Ashkii yikéédi sidá (18)
    C - A B C D E F G
24. Daatsiłgo (20)
    C - A C D E F G

The children's responses are ranked here in order of their relative acceptability to the judges as a group. The numbers in parentheses after each response indicate their order of listing in the original questionnaire (Appendix B). In these sentences, tsinaabąąs means 'wagon' and ashkii 'boy'. Although there was also variability in these terms, the lexicon was regularized to some extent for this task in order to focus judgments on morphology and syntax.

No response to this item was entirely acceptable to the group, but the first one listed was considered 'baby talk' only by D, who felt an adult must say yine'ji rather than yine'di to express the boy's position. At the same time, one or more judges considered 15 of these responses entirely acceptable for an adult speaker. Again, no response was considered 'baby talk' by all, but 21 out of the 24 responses were considered 'baby talk' by at least one of the judges. There was some agreement--that responses 23 and 24 were inappropriate even from children, but 20 of the other responses were also rejected by one or more of the judges.

To explain a few more reasons given for disagreement: for response 7, which E considered entirely acceptable, and indeed what he would say, five judges considered it baby talk primarily because the third word, meaning 'behind', lacks an object prefix. A rejected it as unacceptable because for her the positional word kéé' means he is at the back of the wagon, but must be sitting inside of it, instead of on the ground (which is where he is in the picture). Responses 6 and 15 received variable ratings because of a similar disagreement in meaning: the iné'dii means the boy is in the back row of people to some of the judges, rather than back of an inanimate object.

One of the most interesting disagreements was over the appropriateness of a bi- vs. yi- prefix on the locative phrases. In responses 9 and 12, for instance, the bikéédi is acceptable to some, meaning 'the boy is behind the wagon', but unacceptable to others for whom it means 'the wagon is behind the boy'. Judges F and B accept either bikéédi or yikéédi, saying it doesn't really make any difference, at least in this context. They agree in rejecting the yikéédi in response 23 as meaning 'something is sitting behind the boy'. Response 22 was rejected by five judges because they said they had never heard it, that it didn't sound like Navajo. B and F recognized it as meaning 'behind', although F said it is an 'old' word, and not used much any more. B and F both rated it as 'baby talk' because the tone is incorrect.

This aspect of the study yielded more additional questions about variability in Navajo than answers, but the task of judging children's utterances proved to be a very fruitful elicitation device. Further research is necessary to discover possible regional patterning in the disagreement. In the future, a tape recording should be used as a basis for judgment in addition to (or instead of) the written questionnaire, and judges should perhaps be asked what their own response would be to a question before they are asked to judge others'. The conference session, where the judges discuss their disagreements with one another, is of particular value in the study of adult as well as child language. The focus on children's utterances provides a culturally appropriate context for identifying 'errors', which one adult Navajo may not wish to say about another adult's speech, at least to an outsider. Nevertheless, in contrast to the insecurity and uncertainty often manifested by speakers of highly standardized languages (such as English) when asked to make grammatical judgments, the Navajo judges were generally quite certain in reporting their own usages and reactions, and were largely unaffected by the differing responses of the others.

V. ANALYSIS OF RESULTS

Lexicon

Items 1 - 9 on the questionnaire elicited Navajo terms for the eight colors which are in the standard school crayon boxes plus 'white'. Table XI indicates the percentage of students who responded with each Navajo variant, by site, and in fall vs. spring. 'Other' means an incorrect Navajo term was used (e.g. dootł'izh 'blue' for 'black'), and 'Eng and Ø' means the student responded in English or not at all, which was interpreted to mean that he or she did not know the term in Navajo. When this occurred the interviewer often asked the student to say it in Navajo; if they were able to do so with prompting, credit was given for the Navajo response.

The term known by most students was łizhin for 'black', followed by terms for white, red, yellow, blue, orange, brown, green, and purple in that order, which is generally what would be expected from other studies on the order of color term acquisition related to the Berlin and Kay ( ) evolutionary sequence, and from the basic categories which exist in Navajo. Black, white, red, yellow, and grue are basic colors, with orange, brown, green/blue, and purple secondary, but required in a bilingual classroom because of the standardized box of crayons for which the students need Navajo terms.

Łizhin is the only Navajo term used for 'black' (1). The rather large number of students at Toadlena who do not know it in the fall interview are all older, and already products of English-only education.

There is no variation in the stem used for 'white' (2), although some students use gai without the usual thematic prefix in łigai. A major phonetic variant is the centralization of the dipthong to [łɪgəi]. Again, the students in Toadlena who do not know 'white' are those who are older and have been in an English-only program for one or more years.

The other basic terms, 'red' (3) and 'yellow' (4), also occur without stem variation. While most of the students use dootł'izh for 'blue' (5), dólii 'bluebird' is a possible alternative, particularly in Greasewood. Many students in Cottonwood, Greasewood, and Toadlena use a descriptive phrase for 'blue' in the spring, differentiating it from green and purple. The most common is dólii nahalingo dootł'izh 'grue like a bluebird', but there is considerable creativity in the expression.

Regional differences in the pronunciation of terms for 'yellow' and 'orange' are particularly striking. Almost all students in Cottonwood, Sanostee, and Toadlena use łitso for 'yellow' (4), and in Toadlena the same term is used for 'orange' (6). Students in Sanostee regularly use aspiration as an intensifier, saying łitsxo for 'orange' (lit. 'very yellow'); students in Cottonwood, on the other hand, regularly labialize łitso to łitswo for 'orange'. Both aspiration and labialization are regularly used for stylistic emphasis, but one of the phonological processes has now been lexicalized in each of these regions to meet the educational demands of the eight 'basic' crayon colors. Most students in Greasewood palatalize and labialize the affricate to łichwo for both colors, but the adult judges said that sounded more like White River Apaches.

TABLE XI
NAVAJO LEXICON

	C Fall / *Spring*	G Fall / *Spring*	S Fall / *Spring*	T Fall / *Spring*
COLOR TERMS (%)				
1. black				
łizhin	91 / *100*	100 / *96*	92 / *91*	63 / *100*
other	5 / *0*	0 / *0*	4 / *0*	0 / *0*
Eng and Ø	5 / *0*	0 / *4*	4 / *9*	37 / *0*
2. white				
łigai	88 / *89*	85 / *96*	88 / *93*	55 / *96*
gai	4 / *5*	8 / *0*	0 / *0*	5 / *0*
other	4 / *0*	0 / *0*	4 / *4*	0 / *0*
Eng and Ø	4 / *5*	8 / *4*	8 / *4*	41 / *4*
3. red				
łichíí'	72 / *68*	80 / *90*	75 / *91*	48 / *88*
chíí'	8 / *18*	13 / *0*	11 / *4*	0 / *0*
other	12 / *0*	0 / *0*	4 / *0*	10 / *0*
Eng and Ø	8 / *14*	7 / *10*	11 / *4*	43 / *13*
4. yellow				
łitso	67 / *80*	36 / *90*	100 / *92*	39 / *96*
tso	8 / *15*	14 / *0*	0 / *0*	6 / *0*
other	8 / *5*	21 / *0*	0 / *0*	11 / *0*
Eng and Ø	17 / *0*	29 / *10*	0 / *8*	44 / *4*
5. blue				
dootł'izh	54 / *0*	40 / *5*	81 / *68*	32 / *32*
dólii	13 / *0*	0 / *20*	4 / *0*	0 / *0*
phrase	0 / *82*	20 / *55*	4 / *4*	5 / *44*
other	17 / *6*	13 / *0*	7 / *11*	14 / *0*
Eng and Ø	17 / *12*	27 / *20*	4 / *18*	50 / *24*

	C	G	S	T
6. orange				
łitso	31	17	22	24
	29	*13*	*20*	*32*
łitsxo	19	25	35	12
	5	*8*	*12*	*11*
łitswo	19	0	13	0
	52	*4*	*24*	*7*
łichwo	0	8	30	0
	5	*46*	*28*	*29*
łicho	6	8	0	6
	0	*8*	*0*	*7*
Eng and Ø	25	42	0	59
	10	*21*	*16*	*14*
7. brown				
dibełchii'	0	64	65	0
	0	*100*	*56*	*86*
łibah	44	9	30	11
	11	*0*	*16*	*5*
niłhin	33	0	0	5
	33	*0*	*0*	*0*
nishin	0	0	0	0
	44	*0*	*0*	*0*
other	0	0	0	5
	0	*0*	*12*	*0*
Eng and Ø	22	27	4	79
	11	*0*	*16*	*9*
8. green				
dootł'izh	45	8	34	20
	0	*19*	*12*	*14*
tátł'id	0	17	41	0
	0	*0*	*62*	*0*
phrase	34	0	7	10
	100	*67*	*4*	*75*
other	0	8	14	5
	0	*4*	*8*	*0*
Eng and Ø	21	67	3	65
	0	*11*	*15*	*11*
9. purple				
dootł'izh	10	29	22	26
	0	*7*	*8*	*4*
tsididee	0	0	44	5
	0	*48*	*54*	*79*
phrase	29	0	11	0
	71	*22*	*4*	*0*
other	10	7	7	0
	0	*4*	*8*	*4*
Eng and Ø	52	64	15	68
	29	*19*	*25*	*13*

	C	G	S	T
10. triangle				
txáágo deez'á	100	50	0	100
	100	*0*	*6*	*100*
txáágo yistł'a	0	50	100	0
	0	*100*	*94*	*0*
11. circle				
nímaz	58	71	87	56
	30	*68*	*39*	*57*
názbąs	42	29	13	45
	70	*32*	*61*	*43*
12. tree				
t'iis	50	82	68	80
	76	*95*	*91*	*70*
gad	44	0	5	0
	6	*5*	*0*	*0*
tsin	0	11	5	0
	12	*0*	*4*	*0*
ch'il	6	11	23	20
	6	*0*	*4*	*30*

The terms for 'brown (7) also have regional distribution, with dibełchi (referring to the color of brown sheep) used in Greasewood, Sanostee, and Toadlena, and łibah in Cottonwood and Sanostee. The latter term was rejected for 'brown' by most judges for whom it means 'grey' or 'beige', but C and G say they use it for 'brown' themselves.

Terms for 'blue', 'green', and 'purple' show developmental differences, with dootł'izh used for all three by the students in the fall, and descriptive phrases or specialized terms in the spring. Those used for 'green' and 'purple' also patterned regionally. Students in Cottonwood, Greasewood, and Toadlena generally learn to say ch'il bit'ąą' nahalingo dootł'izh 'grue like a plant leaf' for 'green' (8), while taatł'id 'moss' is used in Sanostee. This is interesting because Ervin-Tripp reported in 1961 that among Navajos aged 17 to 70, the younger speakers did not know the word tatł'id, but used dootł'izh instead. Since tatł'id is regularly reported in 19th century sources for both Navajo and Apache, it has either survived only in the Sanostee area, or is being revived there in the bilingual program.

In the case of 'purple' (9), the intentional introduction of tsididéé (one kind of purple plant) can be dated 1968, according to Paul Platero (p.c.), with a decision made and first implemented at the Rough Rock School. In spite of its rapid spread through the bilingual classrooms, tsididéé is not known as a color term even now by many adults. Some of the judges had not heard it used, but all considered it appropriate if it were. The descriptive phrase tsididéé nahalingo dootł'izh 'grue like a kind of plant' was a frequent response in Cottonwood spring interviews.

There was general agreement on most other terms which were elicited in items 1-22. A major exception is txáágo deez'á and txáágo yistł'a for 'triangle' (10). All students in Cottonwood and Toadlena used the former, and all but one in Sanostee used the latter. All students in Greasewood used the latter in the spring, but were equally divided on their choice in the fall. Since the triangle is not considered a basic shape in Navajo, this is an example of two new terms in competition. Both are descriptive phrases, one referring to a shape with three sides, and one to a shape with three angles.

Both nímaz and názbąs were used for 'circle' (11), with no apparent regional patterning. Differences in the terms for 'tree' (12) are probably due to different interpretations of what kind of tree is in the picture, since there is no single term in Navajo. It is likely children first learn the term for the tree most common in their region and apply it to others, but that cannot be determined from these responses. The most common response is t'iis 'cottonwood', which is also the most common term for adults to use generically; gad refers to 'juniper tree', tsin to 'wood', and ch'il to 'plant'. Individual students gave a few other responses, including nidishchi' 'ponderosa pine'.

Items 23-40 on the questionnaire included several pictures with a 'wagon' or a 'table'. These were seldom used by students in the fall of the first grade year, but learned in Navajo by spring. 'Baby' terms for wagon are regional, with tsits'aa' or 'box' common in Greasewood and Sanostee, and łįį' ts'aa' or 'horse basket' known only in the Cottonwood area. The most common form by spring is tsinaabąąs 'wood rolls around'. 'Table' was one of

the few English words used frequently, particularly in the fall. Many children tried several times to pronounce bikáá'adání in the taped sample, and closer approximations were the result of adding syllables--from káádán, to káá'adán, to káá'adání, to the target bikáá'adání. A few kept going, to bidááda'adání and even bikáá'adaa'adání. The adult judges thought this was quite normal, that children enjoyed 'playing with the sounds'.

Phonology

Segmentals

Table XII indicates some of the differences in pronunciation which the students exhibit. Initial [ɬ] in łíí' 'horse' (1) is frequently articulated as affricate [tɬ], as it is in łééchąą'í 'dog' and łizhin 'black'. This was judged 'baby talk' by adults, or 'the way people talk when they're just learning Navajo'. Even more children use [tɬ] in the spring than fall, however, suggesting this is not a developmental feature. 'Other' forms are tii and sii, immature approximations of łíí'. This term and dootł'izh 'grue' (2) indicate that the lateral and affricate series are not fully developed by age six for some children, but are nearly so. Many students in the fall but not the spring also substitute [t] or [s] for [ts], as in tinaabąąs or sinaabąąs for tsinaabąąs 'wagon'. Quite common is a substitution of additional [ɬ]'s for [h]'s and even sibilants if there is one legitimate [ɬ] in a phrase, as in yiłałńt'éé' for yihałńt'éé' 'he played (the drum)'. This is a kind of consonantal agreement rule which the adult judges considered quite typical of immature Navajo speech.

The students' pronunciation of the final consonant in dootł'izh 'grue' is overwhelmingly voiceless [sh]. Many in the fall use final [s] or [z], indicating the final palatal is relatively late in acquisition. The devoicing may indicate that [zh] is later still, or that the standardized spelling does not represent actual usage. The investigator has heard many adults use [sh] in this lexical item, but the judges for this project were quite insistant that [zh] is correct.

Navajo does not make a taxonomic phonemic distinction between [u] and [o], and the distribution has traditionally been attributed to 'free variation'. The vowel of 'fire' (4) suggests there is some regional patterning, with [o] more common in the eastern sites of Sanostee and Toadlena--at least in the fall. Articulation of the vowel appears to be raised by spring. Information on students' clan membership was collected in part to see if that factor might reflect preschool interaction networks, and perhaps prove to be more salient than region in the production of [u] vs. [o].

A total of 20 different clans were represented among those students for whom this information is available (see Tables II-VI). Only three clans had ten or more members in this population. Based on this limited sample we can only conclude that this factor is one which should be taken into account in any dialect survey which might be undertaken; no definitive statement is warranted. The fourteen students whose mothers' clan is Tó dích'íí'nii 'Bitter Water People' appear to be much more likely to use [u] than [o], whether they live in Cottonwood, Greasewood, or Toadlena; the eleven who are Kin łichíi'nii 'Red House People' also seem much more likely to use [u] than [o], whether in Greasewood or Toadlena, and the ten Kin yaa'áanii 'Towering House People' seem much more likely to use [o] than [u], whether at Cottonwood

TABLE XII
NAVAJO PHONOLOGY

	C	G	S	T
1. #ɬ- of 'horse'(%)				
ɬi̯i̯'	76	79	89	86
	77	*46*	*78*	*88*
tɬi̯i̯'	5	21	7	14
	9	*50*	*11*	*13*
other	19	0	4	0
	14	*4*	*11*	*0*
2. -tɬ'- of 'blue'				
dootɬ'izh	97	100	97	100
	79	*83*	*97*	*100*
dootɬizh	3	0	0	0
	19	*13*	*0*	*0*
doodlizh	0	0	0	0
	0	*4*	*0*	*0*
doot'izh	0	0	3	0
	0	*0*	*3*	*0*
doo'izh	0	0	0	0
	2	*0*	*0*	*0*
3. -zh# of 'blue'				
dootɬ'izh	8	17	10	0
	0	*0*	*17*	*5*
dootɬ'ish	62	33	33	43
	100	*100*	*72*	*95*
dootɬ'is	31	33	43	57
	0	*0*	*0*	*0*
dootɬ'iz	0	17	14	0
	0	*0*	*11*	*0*
4. Vowel of 'fire'				
kų	33	22	11	22
	29	*28*	*45*	*40*
kų	33	56	24	11
	47	*44*	*45*	*40*
kǫ	33	11	65	67
	18	*16*	*9*	*20*
kǫ	0	11	0	0
	6	*12*	*6*	*0*

5. Pronunciations of 'mouse' (order of frequency)

na'atsǫǫsí

na'asts'ǫǫsí (35)

na'ats'ǫǫsí (20)

na'as'ǫǫsí (19)

na'ast'ǫǫsí (2)

na'asch'ǫǫsí (2)

na'ashǫǫshí (1)

na'astǫǫsí (1)

	C	G	S	T
6. Tone on future 'play' (%)				
ńdiine'	77	87	60	71
	10	*77*	*47*	*69*
ndiine'	8	0	0	7
	55	*5*	*0*	*0*
ńdíine'	8	7	40	0
	10	*10*	*32*	*31*
ndíine'	8	0	0	21
	10	*0*	*21*	*8*
ńdiiné'	0	7	0	0
	18	*10*	*0*	*0*
7. Tone on past 'play'				
nanéént'é	90	77	76	93
	79	*90*	*81*	*79*
naneent'é	0	0	16	0
	14	*0*	*14*	*13*
nanéént'e	0	23	0	0
	0	*5*	*0*	*8*
naneent'e	5	0	0	7
	7	*5*	*0*	*0*
nánéént'e	0	0	8	0
	0	*0*	*0*	*0*
8. Glottalization on past 'play'				
-nt'e	0	0	17	0
	20	*4*	*23*	*10*
-nde	100	100	75	100
	60	*87*	*73*	*91*
-nde'e	0	0	8	0
	20	*9*	*5*	*0*
ǹnééné	36	20	20	33
	26	*0*	*5*	*13*
9. Nasalization on present 'eat'				
-yą́	33	100	96	100
	10	*92*	*96*	*100*
-yá	67	0	4	0
	90	*8*	*4*	*0*
10. 'boy holding stick'				
-tɬíɬ	13	40	20	33
	73	*64*	*88*	*56*
-tííɬ	63	10	54	22
	8	*0*	*12*	*0*
-jih	13	40	8	11
	0	*27*	*0*	*22*
other	13	10	0	33
	8	*10*	*0*	*22*
11. 'man and woman holding baby'				
-tééɬ	0	0	5	0
	0	*0*	*0*	*0*
-tííɬ	75	80	86	73
	100	*60*	*57*	*27*
-tɬíɬ	0	0	10	27
	0	*20*	*43*	*73*
-kal	25	20	0	0
	0	*20*	*0*	*0*

	C	G	S	T
12. Vowel length on present 'eat'				
-yǫ́	87	86	92	100
	24	*17*	*8*	*14*
-yǫ́ǫ́	13	14	8	0
	76	*83*	*92*	*86*

or Greasewood. It is very unlikely that this patterning reflects any historical social dialect division which cross-cuts geographical residence. Rather, it is felt that the fact children are somewhat mobile may blur regional distinctions in the data, and that since alternative caretakers to mother are usually mother's mother or mother's sister, mother's clan membership might provide a valid social category designation were variable rules to be formulated.

Consonant harmony

Terms for 'mouse' (5) indicate that the consonant harmony rule which requires an agreement in palatalization is established by 6 years. Most children say na'atsǫǫsí but -s-s- and -st-s- are also possible. In fact, a rather wide range of sounds is allowed in this position, but there are only two violations of consonant harmony in the interviews, in which students say na'ashch'ǫǫsí, in violation of the palatalization agreement rule.

Suprasegmentals

With a few stable exceptions (most notably naadą́ą́ 'corn', which virtually every student pronounces the same--perhaps for religious reasons), there is considerable variation in tone, glottalization, nasalization, and vowel length.

Tone

The future as past (completive) forms of 'play' (6 and 7) are listed in Table XII with an indication of the percentage of children who use each tonal configuration. The adult target for the future is the first given, ńdiine' (ń- future, -dii- inceptive, -ne' stem 'play'), but a higher percentage use one of the other forms in the spring than do in the fall. Of particular note are the all low ndiine' used by over half of the students in Cottonwood in the spring, and the ńdíine' used by almost a third in both Sanostee and Toadlena. This form occurred at least twice in each interview, almost always with the same tones. It is most frequently used as a complete response in itself, 'He is about to play', but its occurrence with an NP ending in a high or low vowel does not make a significant difference: e.g., ashkii ńdiine' 'The boy is about to play' and łééchąą'í ńdiine' 'The dog is about to play', or ashkii ndiine' and łééchąą'í ndiine' have equal frequency.

Tone on the past form nanéént'é (-ńt'é is the past enclitic) is more consistent, as can be seen in (7).

Glottalization

Glottalization in the past enclitic is not articulated by the children, as can be seen in (8). Most who produce the nasal + stop cluster (64% of total 'past') do not use a glottalized release that is audible on the tape, although their glottalization of dootł'izh (2) is well established and often quite forceful. All adult judges felt that glottalization is 'proper' in that context, but the investigator believes this to be a variable feature

in informal adult Navajo speech. The fourth entry, ǹnéénéné, is an immature form (also characterized as 'lazy talk'); one-fourth to one-third of the children produced this for 'past' in the fall rather than a form with a nasal + stop cluster.

Nasalization

The verb 'eat' also occurs several times in each interview. The nasalized stem -yą́ is considered the adult target, but students in Cottonwood do not nasalize the vowel. Among the others there appear to be regional differences in degree of scope of nasalization. Several children from Sanostee nasalized a full sentence if any nasal vowel (or consonant) is included, leading us at first to speculate that it was due to a physiological condition. When asked about this observation, adult judges confirmed that many people around Sanostee and Red Rock 'talk through their noses', a characteristic that is used in joking about them. Speakers in the western part of the reservation have stronger aspiration and glottal closure, and 'sound harsher' than those in New Mexico.

Even the children themselves are apparently quite aware of such regional differences. The judge we have labeled F said his son lived with his grandparents for three years and thus learned a different regional variety of Navajo than that spoken where they now live. The boy is back with his parents and attending first grade, but the other children laugh at the way he speaks, so he is refusing to use Navajo any more.

In the choice of verb stem for 'holding stick-like object' (10) and 'holding animate object' (11), adult targets -tį́į́ł and -téél respectively, it can be seen that most children have appropriately nasalized the vowel in the first. Except for students in Toadlena (who seem to make no distinction between the two), children appropriately do not nasalize the stem referring to animate object. The vowel used is higher than the one considered the adult target by judges, however, which suggests nasalization could well be a more salient feature for children in verb stem alternation than vowel height. The other responses in these items will be discussed below.

Vowel length

Vowel length is a salient feature for adults in the stem for 'eat', with -yą́ the target present (imperfective) form in these examples (12), and -yą́ą the unintended past (perfective). Since over three-fourths of the students in each site use the 'incorrect' vowel length in the spring interviews, it might be reasonable to conclude that this is not a salient feature in their language. Alternatively, this may represent a style they have developed for answering questions in this type of formal elicitation context. Some of the vowels are very long, and a few of the children even intone or chant their responses. This further reinforces the interpretation of vowel length as style, probably an artifact of the classroom question and response proceedures.

Morphology

Items 23-40 in the questionnaire were intended to elicit information on the grammatical forms which the children use. The morphemes which occurred with enough frequency in the responses to allow reliable tabulation were rated separately for each child, basing decisions of acceptability and grammaticality on the responses of the adult Navajo judges. The following scores were assigned for each morpheme:

5 if appropriate and acceptable for an adult.
3 if considered grammatical, but 'baby talk'.
1 if ungrammatical.
4 if the individual's usage included both adult (5) and immature (3) forms.
2 if the individual's usage included both grammatical (3-5) and ungrammatical (1) forms.

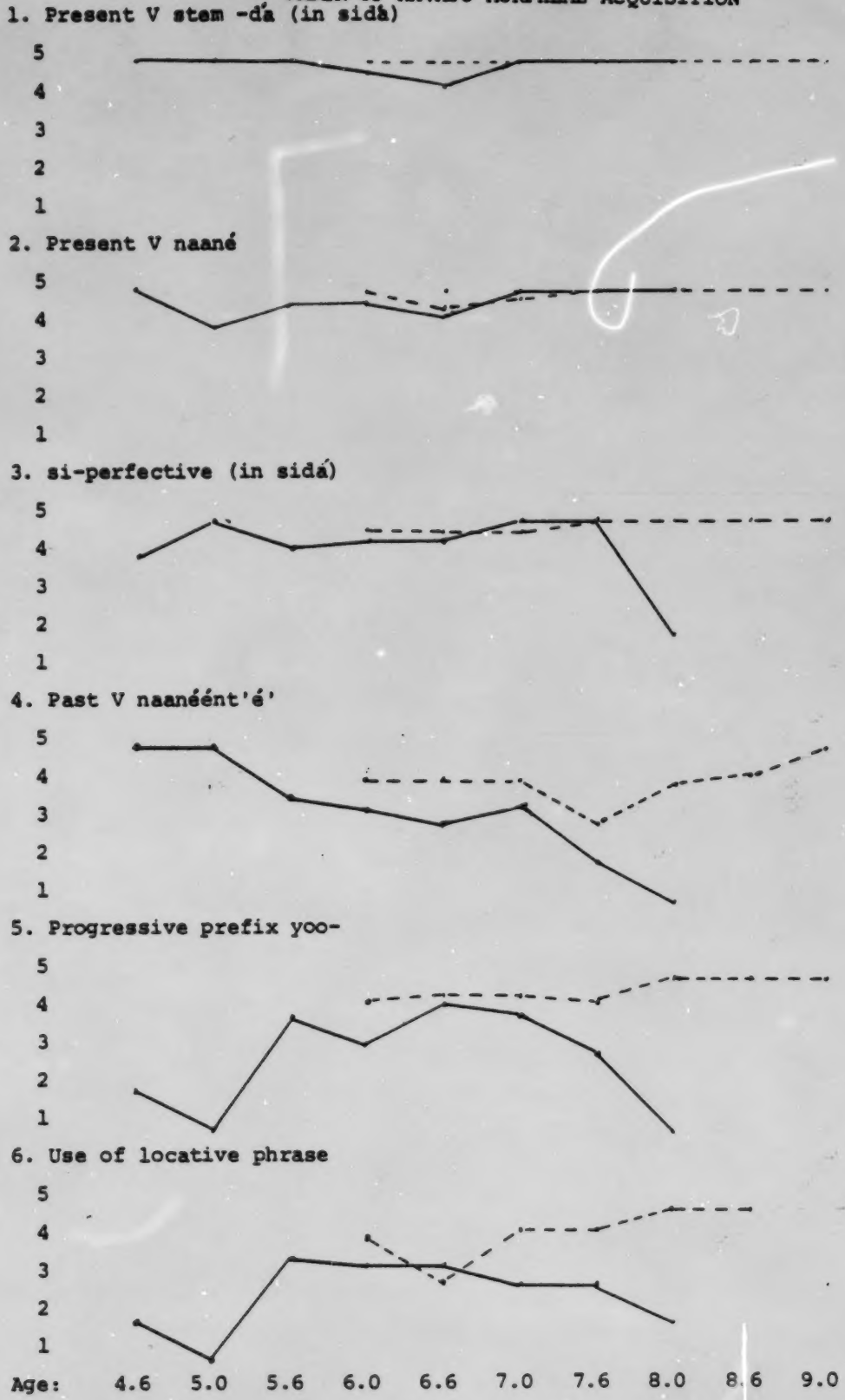
Since the judges did not agree (see section IV above), the higher score was given to each if rated so by two or more of the seven adult Navajo speakers (i.e., if two judges considered a form appropriate and acceptable for an adult and the other five judges considered it 'baby talk', it was given the higher score). This basis for scoring was used rather than a majority rule because of the possibility that there would be regional differences in acceptability. A single disagreement was discounted because individual judges were consistently more or less 'harsh' in their judgments of what was grammatical (see Table IX, p. 20). The lack of agreement among judges concerning the grammaticality (and even meaning) of some utterances was an unexpected problem for this aspect of the study, but otherwise of considerable interest. Further clarification of the nature and extent of such disagreement will be forthcoming after further investigation.

Many of the responses which were given to the English interview were made in Navajo, and these were also counted if misunderstanding of the English could not have biased the results. For example, if the question were asked in Navajo, Ashkiish ha'át'í yaa ní dii dzá? 'What is the boy going to do?' and the response were in the present, the child would be rated 1 or ungrammatical with respect to the future morpheme. If the question had been asked in English, on the other hand, and the response were in the Navajo present, it was not counted at all with respect to future since the child could have misunderstood the English tense in the question. If the English future question were answered in the Navajo future, the child would be rated 5 for the future morpheme in Navajo (providing it also occurred in other utterances as appropriate), and given credit for at least receptive knowledge of the future in English. A form was not counted at all if it was not used, unless its omission made the response ungrammatical.

A clear order of acquisition for Navajo morphemes is suggested by the graphs in Table XIII. Computing them first for individuals, and then determining mean scores for each age level at each site, there were no differences at all in the ordering of these ten morphemes from one school to another in the fall, and only one was ordered differently in one school in the spring. There were no differences for boys and girls within each site or across sites.

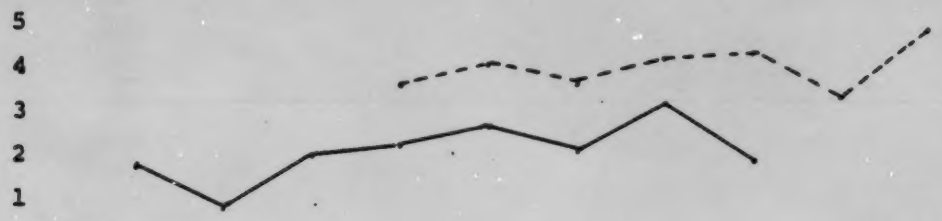
TABLE XIII

ORDER OF NAVAJO MORPHEME ACQUISITION

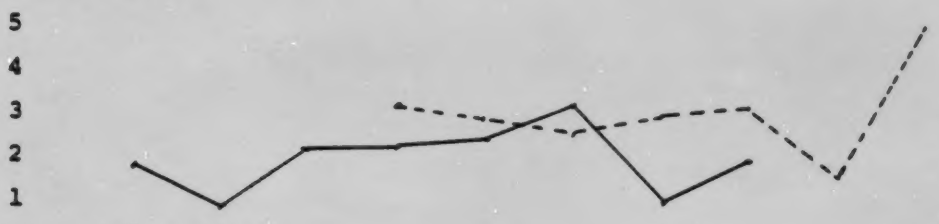


7. Future V ńdiine'

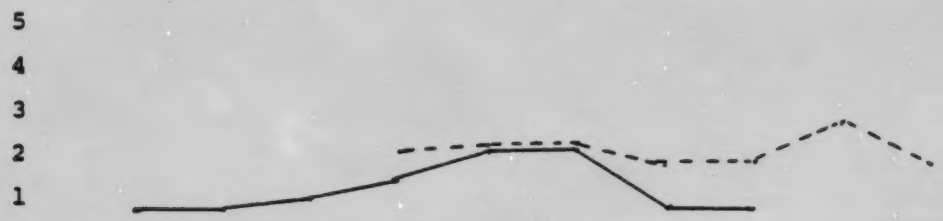
8. Postposition



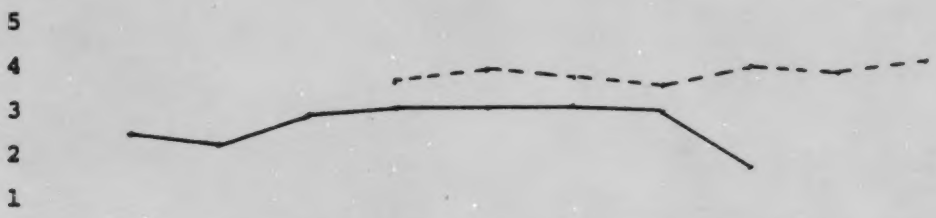
9. Object prefix



10. Locative enclitic



Average



Age:	4.6	5.0	5.6	6.0	6.6	7.0	7.6	8.0	8.6	9.0
N Fall	1	1	13	35	24	6	2	1		
N Spring				11	26	37	6	7	3	1

The verb stem -dá 'seated' (1) was used in responses to questions 23-26 Ashkíísh háadi sidá? 'Where is the boy (seated)?' This was most commonly used with a locative phrase, such as tinaabąąs yidaahi sidá 'in front of the wagon'. Since an alternative grammatical response is the phrase only, tsinaabąąs yidaahi, the omission of the verb is not considered ungrammatical (though unusual). The most immature response given to these questions was kii da 'boy sit', but credit was still given here for the verb stem. (it is important to note that this response was from one of the older children in the sample, although judges said it sounded like a sentence that would be used by a two year old.) The only errors in this item were verb stems that were inappropriate for the question, such as in naané 'playing'.

The verb naané (2) was used in responses to questions 27-31, Ashkíísh ha'át'íí yaa naaghá? 'What is the boy doing?' and Ałchíníish ha'át'í yaa naa ghá? 'What are the children doing?' The absence of any verb in these responses was considered ungrammatical (very rare), and naaná or ná were considered immature forms of naané.

The si- perfective (3) occurs most commonly in response to questions 23-26, prefixed to -dá, and its omission is considered ungrammatical. The contracted sdá was judged immature by all adults, who remarked it would be difficult for them to even pronounce it that way. All of the children use at least the contracted form in the fall, except for the oldest in the sample.

The -ńt'é' past enclitic (tone and glottalization described under 'phonology' above, see Table XII) occurs primarily with the verb 'play'(4), in response to questions 32-33 Ashkiish ha'át'í yaa naa ghá́á ńt'é? 'What has the boy been doing?' The use of present naané is considered ungrammatical, and naanéénéné (without the d or t') an immature form. Because the youngest children in the sample and all in the 'normal' age range for first grade use at least the immature form of the past enclitic, it is assumed that it has been acquired by age five. The fact that it is not used, or variably used, by the older children who have been in school longer is thus taken as evidence of regression. The older students would have had English-only instruction since school entry, since these data were collected during the first year of first grade bilingual instruction. Since they are in a boarding school context, Navajo would thus be used only with peers, suggesting the pidginized 'dormitory Navajo' which is commented on by native speakers (but remains undescribed to our knowledge except for mention by Wilson in 1968 and in Diné Biolta' Association 1973) may develop very early, and is the result of language degeneration as well as incomplete learning.

The progressive prefix yoo- occurs mainly with the verb stems meaning 'hold' (5) in response to questions 27 and 36. In the first a boy is holding a stick (ashkii tsin dah yootíí́ł) and in the second a man and woman are carrying a baby (hastiin dóó asdzán awéé' dah yoołtéél). In these contexts, the sentence is considered ungrammatical if yoo- is omitted, and forms like yitíí́ł and hootíí́ł are considered immature. Most children are using yoo- at least some of the time by age 5.6, but regression is again evidenced by older students. All use it quite consistently by the time of the spring interview.

A locative phrase (6) should have been used in response to questions 23-26, and any locative expression is given credit for this item. The youngest and oldest children do not use any locatives in the fall, and those in the 'normal'

age range for first grade have not fully acquired the structure. In response to Ashkíish háadi sidá? 'Where is the boy?', utterances like tsinaabąąs 'wagon' or naané 'playing' are considered ungrammatical or inappropriate.

The future (7) might more appropriately be called an 'incipient progressive', since ńdiine' 'he is going to play' may be analyzed ń- future, -dii- is about to, -ne' play (imperfective), as in Łéęchąą'í yiłńdiine' 'He is about to start playing with the dog'. A response in the present to a future question is considered ungrammatical, and diine' is considered immature. The oldest subject in the fall did not respond to the questions requiring future, so it may be assumed he at least recognized that something other than the present would be required. None of the youngest students used the future at the time of the fall interviews.

An appropriate postposition (8) is usually used by children who use any locative phrase at all. The adult judges were looking at the stimulus pictures themselves while rating the responses, and they accepted a great variety of them. When describing a boy in a wagon, -káá 'top' was rejected, for instance, and ts'aaji was considered incorrect for describing the boy in front of the wagon because it answers how the boy is sitting, rather than where. Judges disagreed about the postposition -tł'áá used to describe a boy sitting under a table, with some thinking he would have to be covered, or nearly so, as in a hole under the table or directly under its top. Since -tł'áá was considered appropriate by some, full credit was allowed for its use.

Students were given credit for using either bi- or yi- as an object prefix in a locative phrase, although there were definite (but conflicting) feelings among the judges that only one was correct in each case. (See pp. 20-23 for some discussion of this disagreement. Additional information is provided in the section on syntax below, and in our paper included as Appendix D. More on this topic will be forthcoming.) The absence of any object prefix is considered ungrammatical, but there is a systematic bias in giving credit for some prefixes that may not actually be intended. If the preceding noun ends in an [i], as in Biká'adání (yi)yaa sidá 'He is under the table', it is assumed that the yi- is there whether on the surface or not, in accordance with native speaker intuitions. This is frequently disambiguated because of borrowing from English, which yields Table yaa sidá, and thus no credit for the object prefix. Other unacceptable responses are áyi for 'in it', because the á- means the boy is enclosed in something, and the picture shows the boy sitting in an open wagon, and niyaa 'under you', because it did not make sense to the judges in that context.

Few locative enclitics (10) are used by any students within the age range represented, although they are required in some of the responses. The enclitics -ji, -di, -gi, and -hi are all accepted, as in yidáąji sidá 'he is in front of it'. The different meanings of these enclitics ('in the direction', 'at the place', 'at the point') were all considered appropriate for the picture. Enclitics judged immature included -dzi and -yi (perhaps intended as -ji and -hi), and -go was considered ungrammatical in the contexts in which it occurred.

Several other interesting observations may be noted about the children's morphology, but none of the other items occurred with sufficient frequency to allow placement in the order of acquisition which we have posited.

A few children use the adverbial naa- 'again', as in 'He is going to play again', but they are not sure where to put it in the morpheme sequence. All of the following occur: naadiine, ńnaadiine, and naaŕdiine.

The animate-inanimate distinction in postpositions has not yet been mastered, with Lééchąą'í yee naané 'He is playing with the dog' fairly common. Yee naané could be used appropriately only if the object were not alive. The use of an animate form yił for 'with it' in Ashkii awéeshchíín yił naané 'The boy is playing with the doll', with the doll designated as an animate object, is considered appropriate usage for children, but not adults.

The choice of inappropriate forms for a particular semantic category is one of the most common characteristics of children's speech, as opposed to adult usage:

Ashkii tsinaabąąs áyi' sidá 'The boy is in the wagon'
íiyá 'He walked off'
Hastiin dóó asdzán awéé' dah yoołtį́į́ł 'The man and woman are holding the baby (like a stick)'

The áyi' meaning 'in' in 'The boy is seated in the wagon' should not be used to refer to an open container like a wagon bed, but an enclosure, as mentioned above. The íiyá means 'He walked off', but out of sight. That form is not used by adults if they can still see the boy. The final verb stem in the next example, -tį́į́ł, is appropriate for sticks, not animate objects, although it might be appropriate if the baby were on a cradle board.

Several of the children's utterances were considered unacceptable because of inappropriate number specification:

Tsin yoojih 'He is carrying a stick'
Awéeshchíín dił yoołtį́į́ł 'She's holding a doll'
Da'iiyą́ą́ 'They (3 or more) are eating'
Awéeshchíín dóó ásaa' bikáá'adání yaa sidá 'The doll and drum are under the table'

In the first example, the verb stem jih indicates more than one, but the picture shows a boy carrying only one stick. This is problematic because the stick is forked; two of the judges felt a plural verb stem is appropriate for a forked stick, and five did not. The plural form is used almost exclusively by children from Greasewood, so there may be some regional patterning to this disagreement. The second example is inappropriate because two children with two dolls are in the picture. This is also problematic because one of the children is a boy; two of the judges said it would be acceptable to refer only to the girl in the picture since boys don't play with dolls. There was agreement among the judges that the third example is inappropriate because the picture shows only two eating, and that the verb sidá in the final example refers only to the doll; sinił should have been used to include the drum.

There was disagreement among the judges on the use of classifiers in such utterances as Ashkii łį́į́' bił yil(ł)dlosh 'The horse is walking around with the boy on it'. In this case, three said ł is appropriate, three said ł is appropriate, and one said it does not matter. Most children use some classifier when one is needed, as in a causative, but the voicing remains somewhat problematic.

In general, there are few examples in which a stem change is required for marking a change of aspect, but of these only about 20% are 'correct'. The children are beginning to learn this aspect of the grammar, but it is far behind the cliticized past in order of acquisition.

Syntax

Table XIV shows some of the characteristics of word order and agreement exhibited in the children's speech. The clause types they use to express locatives are tabulated in (1). The expanded sentence listed first is very common at all sites except Cottonwood in the spring interviews, but is considered unnatural by adult native speakers. It seems to be a reflex of classroom procedure analogous to the English teacher's directive, 'Use a complete sentence', and is evidence of a Navajo school register already developing in the bilingual program.

Item (2) indicates student performance on question 37, in which a compound sentence is required in response, describing one cat eating and one playing. Most children respond Mósí iyáá mósí naané 'Cat eat cat play', which is acceptable, but judges felt a conjunction dóó 'and' between clauses would be more like adult speech. Some of the children, especially in the spring, say Mósí ła' ayą́ dóó ła'éí naané 'Cat one eat and the other one play', which is considered more mature. Many in the fall mention only one cat, saying Mósí iyáá ... naané, or Mósí iyáá dóó naané, which are considered immature by most judges.

Confusion in the use of yi- and bi- as object prefixes is very common. The following examples are listed with their unintended meanings:

Tsinaabąąs biyi' sidá 'The wagon is in the boy'
Ashkii bikáá'adání biyaa sidá 'The table is under the boy'
Łį́į́' yił naa ghá́á 'He travels with the horse on him'
Ashkii łį́į́' bikáá dah sidá 'The horse is sitting on the boy'
Ashkii awéésh chíín bił yołbąs 'The doll is pulling the boy'

One or more of the judges identified each of these as unacceptable because yi- should have been used instead of bi- or vice versa, but lack of agreement among the adult Navajo speakers requires further investigation. The rule which is generally given is that a bi- indicates the order is OSV rather than SOV, or that the NP in initial position is the receiver of the action, and the NP immediately preceding the verb is the doer. Thus in Ashkii awéésh chíín bił yołbąs (lit: boy doll he it-is-pulling), the boy is identified as the NP being pulled and the doll as the agent. Additional complexities, especially when two NPs are not present, are discussed in Perkins (1979) and Saville-Troike and McCreedy (1979, included as Appendix D). Children's responses suggest that they have not yet mastered this alternation.

Item (3) to (5) in Table XIV list some of the sentences in which children use yi- or bi-, in order of their frequency in response to questions 23-26 (3), question 38 (4), and question 40 (5). Those utterances which have no mark in front of them were considered grammatical by all judges, those with an * were considered ungrammatical by all, and those with a ? were considered grammatical by some judges and ungrammatical others. The basis for this disagreement requires further research, but the younger children appear to use an invariant bi-, perhaps generalizing from the possessive pronoun, or alternating bi- and Ø. When yi- is used, it tends to be used for all object pronouns (including locatives), and may even be overgeneralized to possessives, as in yiká'adání for biká'adání 'table'.

TABLE XIV
NAVAJO SYNTAX

	C	G	S	T
1. Ss 23-26 clause types				
S O LocP VP	1	28	13	4
	21	*61*	*58*	*69*
O LocP VP	13	41	47	22
	26	*26*	*15*	*20*
LocP VP	12	15	19	14
	11	*0*	*0*	*0*
O LocP	28	3	11	26
	19	*9*	*16*	*2*
LocP	38	15	9	28
	19	*2*	*8*	*1*
VP	0	0	3	2
	0	*0*	*0*	*0*
N	3	0	0	2
	1	*1*	*2*	*6*
S LocP VP	0	0	5	2
	3	*0*	*0*	*2*
2. Compound Sentence				
e.g. Mósí ła' ayą́ dóó ła'éí naané 'Cat one eating and the other playing'				
2 subjects	48	67	58	21
	75	*87*	*83*	*86*
3 subjects	0	0	0	0
	0	*0*	*11*	*0*
2 verbs	80	75	73	26
	94	*87*	*100*	*86*
dóó	0	0	0	40
	17	*0*	*6*	*12*

Alternation of bi- and yi-

3. 'The boy is (locative phrase) the wagon'

?ashkii tsinaabąąs bidaahi (in front) sidá
?tsinaabáás biyi (inside) sidá
?tsinaabąąs bikéédi (in back)
?tsinaabąąs biyi' (inside)
?tsinaabąąs bikéédi (behind) sidá
?bikéédi (behind)
?ashkii biyaadi (under)
*ashkii yikéédi (behind) sidá
?tsinaabąąs yikéédi (behind)

4. 'The boy is riding the horse' or 'The horse is walking with the boy on it'

ashkii łį́į́' bił yil(ł)dlosh
?łį́į́' bił yildlosh
ashkii łį́į́' bił sizį́ 'the horse is holding him up while standing'
*ashkii łį́į́' bikáá dah sidá
*łį́į́' ashkii yikáá dah sidá
*łį́į́' ashkii bił yoldlosh
*łį́į́' yił naaghá 'he travels around with the horse on him'

5. 'The boy is pulling the doll in the wagon'
ashkii = boy
awééshchíín = doll
tsinaabáás = wagon
yił yoołbąs = he is pulling it

ashkii awééshchíín yił yoołbąs
ashkii awééshchíín tsinaabąąs yił yoołbąs
?ashkii yił yoołbąs
?awééshchíín yił yoołbąs
?tsinaabąąs yił yoołbąs
?ashkii tsinaabąąs awééshchíín yił yoołbąs
?awééshchíí yił yoołbąs
*tsinaabąs ashkii yił yoołbąs
?awééshchíín bił yoołbąs
*ashkii awééshchíín bił yoołbąs
?ashkii bił yoołbąs

A few children are beginning to use the bi-/yi- alternation appropriately for topicalization, as in the following examples. (These are reported in broad phonetic transcription rather than in standardized spelling. Note in the first example that the Navajo object pronoun can refer to an English NP).

The boy łéechąą'í biłaaneh 'The dog is playing with the boy'
Awee...mm...sdzą́ą́ baa dołtyił...hastį́į́ baa nííyá' 'Baby...the woman is holding it...the man is looking at it'
Déí masi booyą́ 'That the cat is eating it'

Finally, a number of utterances exhibit other kinds of inappropriate word order, including the following examples (broad phonetic transcription):

Ashkii naaneh łeechąą'í 'Boy playing dig'
Ashkii sidá adání yaa 'Boy seated table under'
Ashkii laadzi tsinaabąąs sidá 'Boy before wagon seated'
Tsinaabąąs bikédi sidá ashkíí 'Wagon behind it seated boy'
Naaneh gídí 'Playing kitty'
Ashkii káá'adání doll iyaad sidá 'Boy table doll under seated'
Table tł'ááhi dollie dóó drum sinił 'Table under dollie and drum are'
Awééshchíín tsinaabąąs yazhi yił yołbąs ashkii 'Doll wagon little with it pulling boy'
Table yaa sidá girl 'Table under seated girl'

Some of these are idiosyncratic, but some have clearly been influenced by English. In the first, for instance, word order is SVO rather than SOV, and in the second SVLoc instead of SLocV (though here 'under' still occurs as a postposition within the locative phrase). In the third example the word order is correct Navajo SLocV, but 'before' within the locative phrase has become a preposition.

Such interference from English is much more common with the older students in the sample, who have had more exposure to English, and have regressed in their competence in Navajo grammar.

VI. INTERACTION OF NAVAJO AND ENGLISH

Although not included as a task in our original proposal, we have transcribed all English utterances as well as Navajo, and analysis of these data and the mutual influence of the two languages on one another is in progress. The following section is a preliminary report on these data.

Lexicon

In response to items 1 -22 on the questionnaire, children used appropriate terms with the following distribution (Table XV). The mean number correct at each site is listed by language and test date.

TABLE XV
CORRECT NAVAJO AND ENGLISH LEXICON ITEMS

	Fall		Spring	
	Nav	Eng	Nav	Eng
Cottonwood	18.45	12.46	19.85	19.67
Greasewood	15.53	18.36	18.35	19.63
Sanostee	19.65	14.33	19.68	18.96
Toadlena	11.55	16.61	18.68	21.04

Based on individual students' responses in both languages, the following pattern of lexical dominance may be inferred (Table XVI). Our criterion for lexical dominance is two or more correct responses in one language over the other.

TABLE XVI
LEXICAL DOMINANCE

	Fall	Spring
Cottonwood (%)		
Navajo dominant	71	5
English dominant	10	11
Balanced	19	84
Greasewood (%)		
Navajo dominant	7	5
English dominant	57	23
Balanced	31	73
Sanostee (%)		
Navajo dominant	81	24
English dominant	12	8
Balanced	8	68
Toadlena (%)		
Navajo dominant	29	0
English dominant	14	38
Balanced	57	63

The predominant trend in this aspect of language learning is toward a balance in the number of lexical items known in each language, although the absolute gains in the second language are greater.

Those children who knew some English color terms at the time of fall testing exhibited some confusion among blue, green, and purple (generally calling all blue, if they did), and yellow and orange (Table XVII). This corresponds to the Navajo basic color categories, as described above (pp. 24-28).

TABLE XVII
INTERFERENCE IN COLOR CATEGORIES
(per cent of fall responses)

	C	G	S	T
blue/green/purple	36	0	47	17
yellow/orange	0	0	22	17

Five children in Toadlena and one in Cottonwood continued to exhibit some confusion in these English color distinctions in the spring, but all others were making the appropriate distinctions.

Phonology

No apparent influence from English phonology was noted in the children's pronunciation of Navajo. In the other direction, stops that occur in word final position in English often appear as glottal stops, and voiced final stops are generally devoiced (e.g. red → [rɛt]). In some of these cases the predictable vowel length before the voiced stop in English is maintained even before the substituted voiceless stop.

Few consonant clusters occur in the English data, but the following realizations were noted in initial position:

bl → [bəl], [by], [bw], [pl], [pxl], [pˀl], [blˀ]
br → [bər], [bw]
gr → [gw], [gwr], [gər], [kr], [kˀr]
tr → [txr], [tl], [tw], [tˀr], [tʃxr]

The following substitutions occur in final position:

nd → [n], [nt]
ks → [ˀ]

The following consonantal substitutions occur in response to questions 1-22 of the English interviews:

l → [w], [y], [d], [dz], ø
r → [w], [y], [h], [hr], [d], [x], ø
t → [tʃ], [tˀ], [ˀ]
b → [pˀ], [p]
g → [k], [kˀ], [kx], [t], [ˀ]
j → [tʃ], [ʃ], [s]
k → [ˀ], [g], [tʃ], [kˀ], [tx]
h → [x], [kx], ø
b → [β]
y → [dʒ], [ʃ]
ch → [ʃ], [dʒ]
p → [b], [pˀ], [ts], [v], [t]
f → [ph], [fw], [fl], [fr]
n → ɣ
s → [tʃ], [p]
d → [t], [ˀ], [ð]
m → [mw]

Navajo l is similar to the English l of let, and the children tend to pronounce all English l's the same way rather than altering the tongue position as do speakers of English. English vowels are pronounced without an off-glide in most instances. The most serious problems in the articulation of English vowels seem (predictably) to be [æ] and [ɛ], and distinguishing among [u], [ʊ], [o].

Morpho-syntax

Responses to items 23 - 40 were analyzed to determine which English grammatical structures were used appropriately. Responses to questions 23 - 35 were generally given in a sing-song intonation, as if children were participating in an ESL drill, but questions 36 - 40 elicited more natural responses. In many of the cases where individuals exhibited variable usage, the structure was produced in 23 - 35, and omitted where required in 36 - 40. Table XVIII indicates the percentage of children in each group (fall and spring) who always use an incorrect form (-), who always omit or avoid the form (0), who sometimes use the form appropriately (X), and who always use the form appropriately (+). The questions which are intended to elicit each are noted in parentheses.

On preliminary inspection, there appear to be significant differences in the relative difficulty of these structures for individual children, and for the four groups. Table XIX shows the order of consistently correct (+) structures according to the mean score in the spring, but the high and low range of subgroup means in the right column attest to the relative differences in order and rate of learning.

What is represented here is, of course, not a list of morphemes, but structures in which aspects of morphology and syntax are both involved: e.g., the plural cats in response to question 37 is the most difficult on the whole not only because Navajo nouns are not inflected for plural, but because the singular noun is usually repeated in a compound sentence such as the one elicited here.

Interference

Even preliminary analysis of the interrelationship of the English and Navajo data shows clear evidence of interference. Grammatical errors in each language may be explained in terms of partially comparable structures in the other language, as well as errors which are due to incomplete learning and overgeneralization within each language. Unambiguous examples of interference presented thus far include word order (see p. 42), the plural and compound structures just mentioned, and the differential development of be forms in English. A paper describing this last phenomenon ('The Be Creative') was presented in 1979 to the American Association for Applied Linguistics, and is included here as Appendix E.

Although it has been claimed that older learners of a second language experience only limited and short-term interference in the area of morphology and syntax, this is definitely not the case for Navajo children who start learning English before they have mastered the grammar of their native language.

TABLE XVIII
ENGLISH MORPHO-SYNTAX

	C	G	S	T
	Fall	Fall	Fall	Fall
	Spring	*Spring*	*Spring*	*Spring*
A. be				
1. use of any be (23-31, 34-35, 36-40)				
-	92	29	60	47
	19	*0*	*25*	*0*
X	4	38	32	11
	62	*17*	*58*	*0*
+	4	33	8	42
	19	*83*	*17*	*100*
2. appropriate be-ing (27-31, 36-40)				
-	8	5	24	37
	20	*5*	*4*	*0*
0	88	18	28	0
	15	*0*	*9*	*0*
X	4	59	40	42
	30	*23*	*74*	*24*
+	0	18	8	21
	35	*73*	*13*	*76*
3. appropriate NP be loc (23-26, 36-40)				
-	4	20	44	11
	33	*5*	*29*	*4*
0	92	40	48	58
	15	*5*	*25*	*4*
X	4	25	8	37
	38	*41*	*38*	*20*
+	0	15	0	0
	14	*50*	*8*	*72*
B. singular/plural distinction				
1. plural N - children (30-31)				
-	0	5	20	22
	9	*0*	*43*	*0*
0	100	57	76	78
	18	*45*	*43*	*28*
X	0	5	4	0
	0	*0*	*0*	*0*
+	0	33	0	0
	73	*55*	*14*	*72*
2. plural N - cats (37)				
-	20	0	0	0
	29	*0*	*0*	*0*
0	80	95	100	100
	67	*96*	*96*	*100*
X	0	0	0	0
	0	*0*	*0*	*0*
+	0	5	0	0
	5	*4*	*4*	*0*

	C	G	S	T
3. singular N (all except 30-31, 37)				
-	0	0	0	0
	0	*0*	*8*	*0*
0	67	19	52	56
	5	*0*	*13*	*0*
X	4	0	0	0
	5	*0*	*17*	*0*
+	29	81	48	44
	90	*100*	*63*	*100*
C. V agreement with plural (30-31, 37)				
-	0	0	0	0
	0	*0*	*0*	*0*
0	100	80	92	100
	43	*65*	*92*	*28*
X	0	20	8	0
	52	*35*	*8*	*72*
+	0	0	0	0
	4	*0*	*0*	*0*
D. past V inflection: -ed, was, has been -ing (32-33)				
-	29	45	32	29
	43	*32*	*67*	*16*
0	71	50	45	53
	43	*59*	*25*	*0*
X	0	5	23	6
	10	*0*	*8*	*36*
+	0	0	0	12
	5	*9*	*0*	*48*
E. future (34-35)				
-	17	32	33	25
	29	*61*	*75*	*36*
0	75	41	63	45
	24	*17*	*17*	*0*
X	8	9	4	15
	43	*7*	*8*	*60*
+	0	18	0	15
	5	*4*	*0*	*4*
F. progressive -ing (27-31)				
-	42	14	39	21
	9	*4*	*13*	*0*
0	46	5	17	16
	9	*0*	*0*	*0*
X	13	23	26	11
	14	*13*	*48*	*12*
+	0	59	17	53
	68	*83*	*39*	*88*
G. prepositional phrases (23-26)				
1. appropriate preposition choice				
-	0	14	12	5
	5	*0*	*8*	*0*
0	96	29	68	32
	10	*0*	*17*	*0*
X	0	33	12	47
	19	*57*	*63*	*32*
+	4	24	8	16

	C	G	S	T
2. presence of object				
-	0	0	0	0
	10	*0*	*0*	*0*
0	96	30	68	32
	10	*0*	*17*	*0*
X	0	10	0	21
	14	*4*	*13*	*8*
+	4	60	32	47
	67	*96*	*71*	*92*
3. placement				
-	0	0	0	0
	0	*0*	*4*	*0*
0	96	38	80	42
	19	*0*	*21*	*0*
X	0	10	0	0
	5	*4*	*0*	*4*
+	4	52	20	58
	76	*96*	*75*	*96*
H. and (30-31, 36-40)				
1. NP and NP				
-	33	14	0	0
	33	*17*	*38*	*8*
0	63	67	96	63
	29	*61*	*46*	*0*
X	4	10	0	0
	19	*9*	*13*	*12*
+	0	10	4	37
	19	*13*	*4*	*80*
2. and conjoining clauses or VPs				
-	4	33	12	11
	33	*74*	*88*	*76*
0	88	43	80	68
	38	*26*	*8*	*4*
X	0	5	4	0
	0	*0*	*0*	*8*
+	8	19	4	21
	29	*0*	*4*	*12*

TABLE XIX
ORDER OF + RESPONSES

	Mean	Range L	Range H
1. use of singular N	88.25	S 63	G,T 100
2. placement of prepositional phrases	85.75	S 75	G,T 96
3. presence of object in PP	81.5	C 67	G 96
4. progressive -ing	69.5	S 39	T 88
5. use of any be	54.75	S 17	T 100
6. plural N - children	53.5	S 14	C 73
7. appropriate be-ing	49.25	S 13	T 76
8. appropriate NP be loc	36.0	S 8	T 72
9. NP and NP	29.0	S 4	T 80
10. past V inflection	15.5	S 0	T 48
11. appropriate preposition choice	13.0	C 4	G 24
12. and conjoining clauses or VPs	11.25	G 0	C 29
13. plural N - cats	3.25	T 0	C 5
14. future	3.25	S 0	C 5

VII. CONCLUSION

This study has achieved its goal of transcribing and analyzing taped interviews with 108 Navajo first grade students: 160 interviews recorded in the fall of 1970 (84 in Navajo, 76 in English) and 187 recorded in the spring of 1971 (93 in Navajo, 94 in English). Aspects of Navajo children's phonology, lexicon, and grammar which differ according to age and geographic location have been identified, as well as interaction phenomena in the development of Navajo and English.

It is hoped that these findings will provide a basis for further study of regional, developmental, and social variation in Navajo and related languages. Three major shortcomings in the data which were available have limited the possibilities for interpretation:

1. The lack of a dialect survey of adult Navajo speech, so that apparent regional and developmental differences in the children's language could not be compared with adult norms in their areas. The extensive disagreement found in native speaker judgments requires further research, and suggests there may be significant differences among Navajo speakers in grammatical, as well as phonological and lexical features of their language.

2. While the age range within the population studied ranged from 5.0 to 9.0, data from the youngest and oldest children were very limited. Information on Navajo language development in the preschool years is needed, from a sample including subjects who are acquiring language(s) in both monolingual and bilingual home contexts. Research on older students' Navajo would also be important for understanding the regression phenomena discovered in the older children's Navajo language use. The sample for such a study should include students in both bilingual and English-only educational programs, and in boarding school and day school contexts.

3. The structured interview format used for this study provided comparable data across sites, but research is needed on children's language use in more natural contexts, and with peers as well as adult interviewers.

One significant finding reported here concerning the acquisition of Navajo which is of critical importance to the education of these children, and to the continued viability of their native speech community, is that students from the same home language background who have had a year or two of English-only instruction know <u>less</u> Navajo grammar than do younger children in their first year of school--and their English is no better than that of the younger children by the spring testing date. This finding suggests that schools might well postpone adding further complexity to the language learning process by postponing the introduction of a second language until after the primary years. Present educational practices for Navajo children are apparently leading to subtractive bilingualism at best, and to semilingualism for many.

This study demonstrates that Navajo children have clearly not mastered all of Navajo grammar by the time they enter school. While they control common perfective and imperfective verb forms and the past enclitic, adverbial and aspectual prefixes are just being learned, as are the use of appropriate locative phrases and appropriate stem selection for number, gender, and semantic category. A strong native language arts component is needed in the school curriculum, as well as adult Navajo language models in the boarding school environment, if full adult competence in the language is to be achieved.

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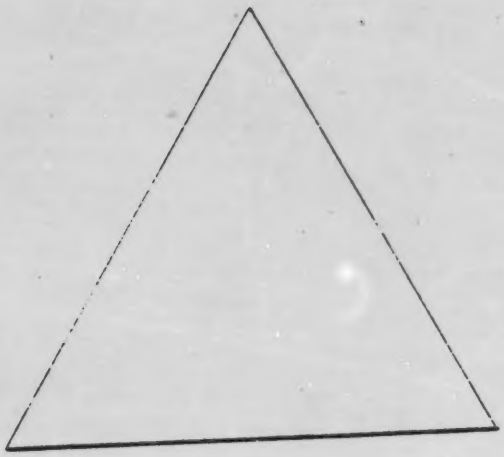
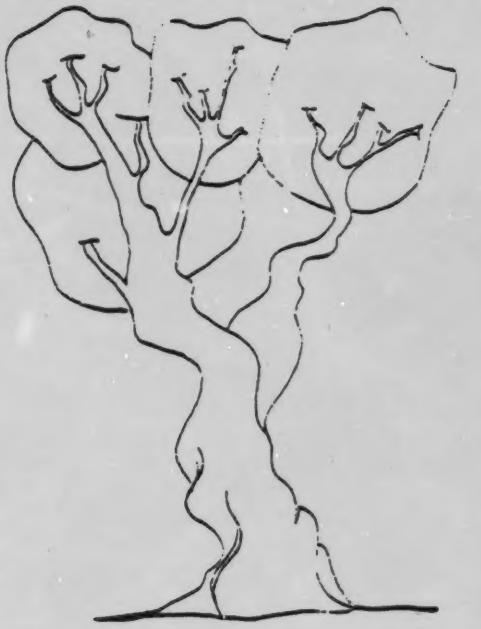
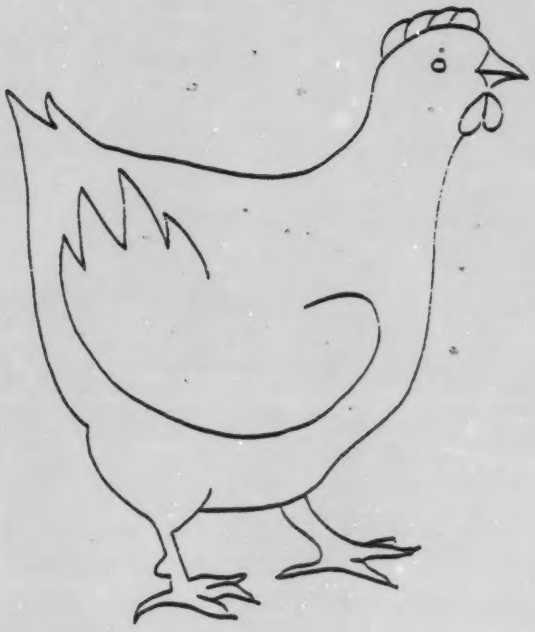
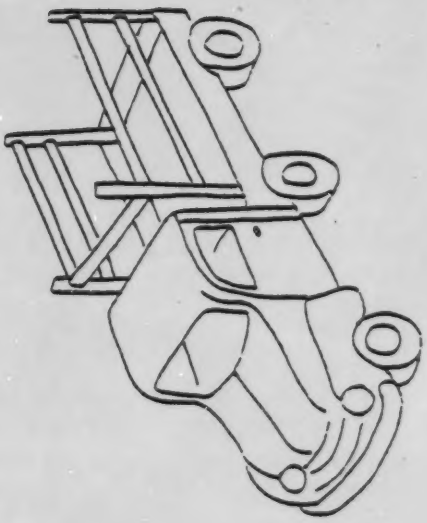
APPENDIX A
PICTURES USED WITH INTERVIEWS

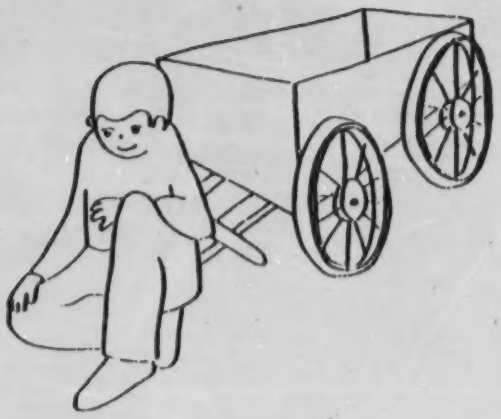
(Colored sheets of construction paper were used with Qs 1-9.)

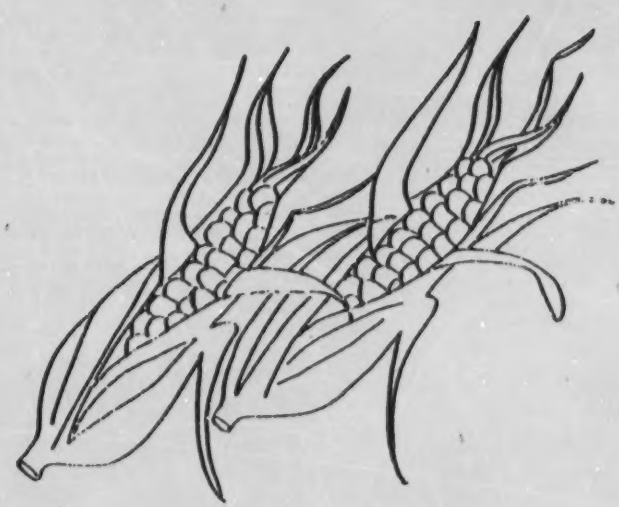


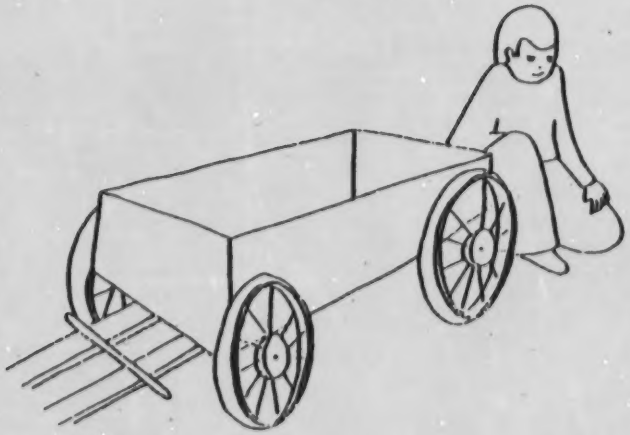


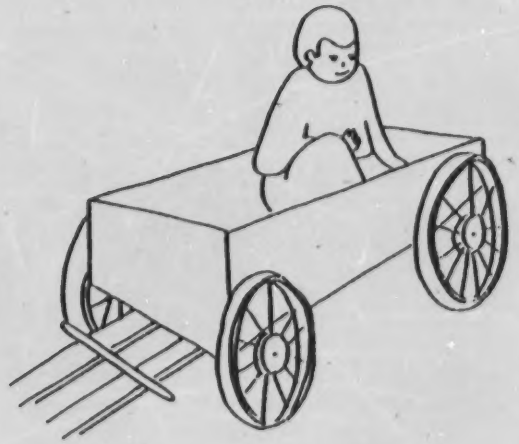


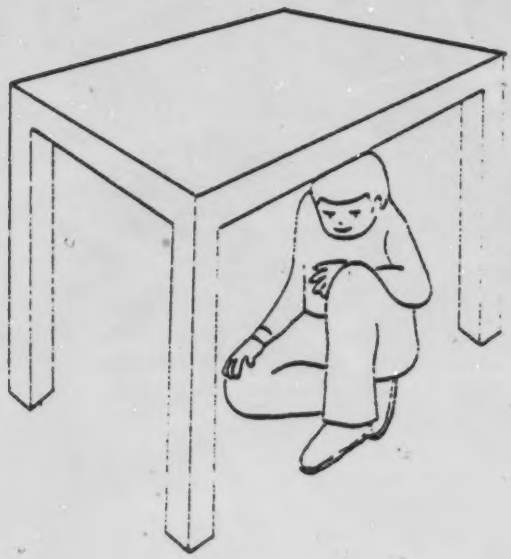


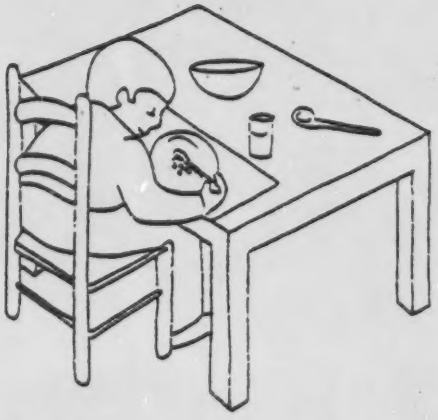


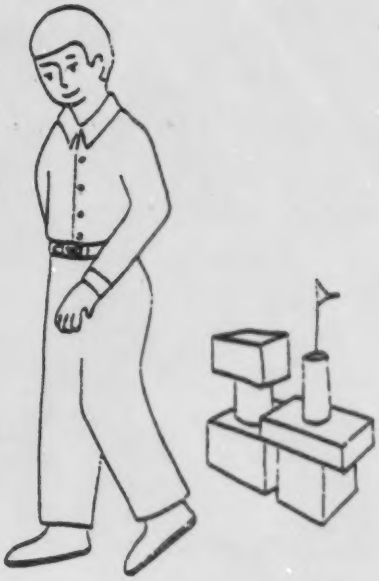


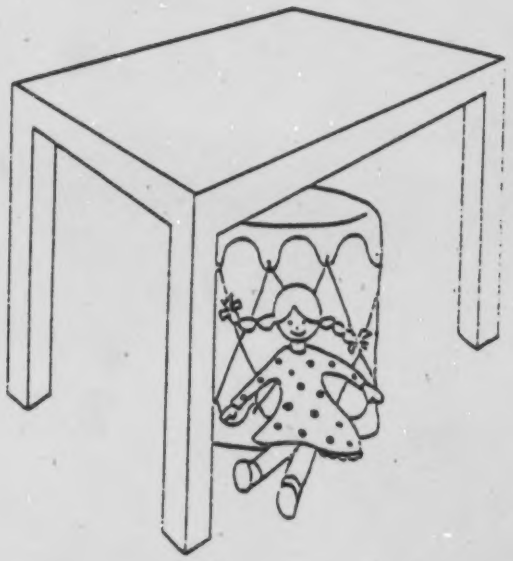


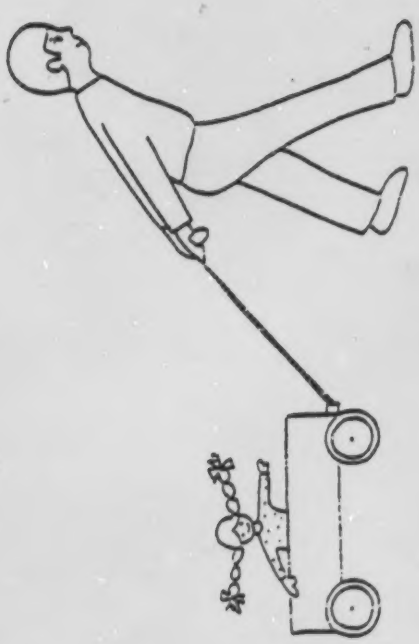












APPENDIX B
QUESTIONNAIRE FOR NATIVE SPEAKER JUDGMENTS

Name of rater _____

Mailing address _____

_____

Social Security Number _____

Where did you grow up (where was your home during childhood)?

_____

Several student responses are listed for the following questions. Please circle the appropriate letter for each:

A. Acceptable and appropriate for an adult speaker.

B. Appropriate for a child, but not an adult.

C. Not acceptable or appropriate for child or adult.

If you circle B or C, please indicate what part of the sentence is not like an acceptable adult response.

23. Ashkíish háadi sidá? (Picture of boy in wagon)

A B C 1) ashkii tsinaabąąs yii' sidá

A B C 2) ashkii tsinaabąąs áyi' sidá

A B C 3) ashkii tsinaabąąs biyi' sidá

A B C 4) tsinaabąąs yii' sidá

A B C 5) tsinaabąąs yii' dá

A B C 6) tsinaabąąs biyi' sidá

A B C 7) ii' sidá

A B C 8) káádi

A B C 9) naaní

10) Words for 'wagon'

A B C a) tsinaabąąs

A B C b) chinaabąąs

A B C c) sinaabąąs

A B C d) tinaabąąs

A B C e) bąąs

A B C f) tsitsaa'

A B C g) ts'aa'

A B C h) łįį́ ts'aa'

11) Words for 'boy'

A B C a) ashkii

A B C b) shkii

A B C c) kii

12) Words for 'seated'

A B C a) sidá

A B C b) stá

A B C c) dá

A B C d) sinda

A B C e) shinda

24. Ashkíísh háadi sidá? (Picture of boy in front of wagon)

A B C 1) ashkii tsinaabąąs yidaayi sidá

A B C 2) ashkii tsinaabąąs bidaayi sidá

A B C 3) ashkii bidaayi sidá

A B C 4) tsinaabąąs bidaayi sidá

A B C 5) tsinaabąąs biláá sidá

A B C 6) tsinaabąąs biláádi sidá

A B C 7) ashkii tsinaabąąs ilaadi sidá

A B C 8) ashkii tsinaabąąs íllaji sidá

A B C 9) ashkii tsinaabąąs illdzi sidá

A B C 10) ashkii tsinaabąąs náádzi sidá

A B C 11) ashkii tsinaabąąs dláá sidá

A B C 12) ashkii tsinaabąąs yíigha sidá

A B C 13) ashkii tsinaabąąs dááyi

A B C 14) yidaaji sidá

A B C 15) né'i sidá

A B C 16) tsinaabąąs illaji

A B C 17) tsinaabąąs laaji

A B C 18) tsinaabąąs illadzi

A B C 19) tsinaabąąs idaaji

A B C 20) tsinaabąąs bidaaji

A B C 21) tsinaabąąs ts'aaji

A B C 22) tsinaabąąs idáadło

A B C 23) bidáádi

A B C 24) yisdáádi

A B C 25) biyaago

26. Ashkíísh háadi sidá? (Picture of boy under table)

A B C 1) ashkii bikáá'adání iyaadi sidá
A B C 2) ashkii bikáá'adání biyaa sidá
A B C 3) ashkii bikáá'adání yiyaa sidá
A B C 4) ashkii bikáá'adání yaa sidá
A B C 5) ashkii bikáá'adání itł'áá sidá
A B C 6) ashkii bikáá'adání bitł'áá'i sidá
A B C 7) ashkii bikáá'adání tł'áádi sidá
A B C 8) bikáá'adání biyaa sidá
A B C 9) bikáá'adání iyaa sidá
A B C 10) bikáá'adání iyaadi sidá
A B C 11) bikáá'adání biyaadi sidá
A B C 12) bikáá'adání diyaa sidá
A B C 13) ííyaa sidá
A B C 14) niiyaa sidá
A B C 15) biyaadi sidá
A B C 16) biyaa ni' sidá
A B C 17) bikáá'adání yaa
A B C 18) bikáá'adání iyaa
A B C 19) bikáá'adání biyaa
A B C 20) bikáá'adání bitł'ááł
A B C 21) bikáá'adání sidá
A B C 22) bikáá'adání biyaagi
A B C 23) bikáá'adání tł'ááne'
A B C 24) bikáá'adání iyaadi
A B C 25) bikáá'adání biyaadi
A B C 26) bikáá'adání diyaadi

27. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy holding stick)

A B C 1) ashkii tsin yootį́į́ł

A B C 2) ashkii tsin dah yootį́į́ł

A B C 3) ashkii tsin néédi tą́ą́h

A B C 4) ashkii tsin yíł'ęh

A B C 5) ashkii tsin ńł'ęh

A B C 6) tsin dah yootį́į́ł

A B C 7) tsin yootį́į́ł

A B C 8) tsin naatį́į́ł

A B C 9) tsin neitį́į́ł

A B C 10) ashkii tsin yinítł'ą́h

A B C 11) ashkii tsin yiníłą́h

A B C 12) ashkii tsin yinítł'įh

A B C 13) tsin nei tyín

A B C 14) tsin nei tíl

A B C 15) ashkii tsin dah yoojih

A B C 16) tsin dah yoojih

A B C 17) tsin yoojih

A B C 18) tsin jih

A B C 19) naané

A B C 20) ashkii tsin yiłnaané

A B C 21) ashkii ná

A B C 22) dadii dzá'

A B C 23) níídii dzá'

28. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy eating)

A B C 1) ashkii ayą́

A B C 2) ashkii iyą́

A B C 3) ashkii yą́

A B C 4) ayą́

A B C 5) iyą́

A B C 6) iighą́ą́

29. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy playing with blocks)

A B C 1) naané

A B C 2) naaná

A B C 3) daane'é yee yaa naaghá

A B C 4) daane'é yee naané

A B C 5) daanaané

30. Ałchíníish ha'át'íí yaa naa'aash? (Picture of boy and girl playing with dolls)

A B C 1) ałchíní awééshchíín yee naané

A B C 2) ałchíní naané

A B C 3) ashkii dóó at'ééd naané

A B C 4) ashkii at'ééd naané

A B C 5) awééshchíín yee naané

A B C 6) awééshchíín naané

A B C 7) naané

A B C 8) naaná

A B C 9) daaná

A B C 10) áá łaa naané

A B C 11) awééshchíín diłyoołtíił

A B C 12) awééshchíín diyootyé

A B C 13) awééshchíín niłtyé

A B C 14) awééshchíín yiłtyé

A B C 15) awéé dóó ashkii niłtéh

A B C 16) aná yaana'ash

A B C 17) łaana éyaa naané

31. Ałchíníish ha'át'íí yaa naa'aash? (Picture of boy and girl eating)

A B C 1) ałchíní iiyáá

A B C 2) ashkii dóó at'ééd iyáá

A B C 3) ashkii at'ééd iiyáá

A B C 4) ch'iyáán

A B C 5) ayáá

A B C 6) iiyáá

A B C 7) eeyáá

A B C 8) áá łaa ayǫ́ǫ́

A B C 9) da' iiyǫ́ǫ́

A B C 10) ayáá bahadi

A B C 11) yáá

32. Ashkíish ha'át'íí yaa naagháá ńt'éé'? (Picture of boy walking away from blocks)

A B C 1) ashkii tsin yee naanéé ńt'éé'

A B C 2) ashkii yee naanéé ńt'éé'

A B C 3) ashkii tsin yazhi né

A B C 4) ashkii naanéé ńt'éé'

A B C 5) tsin naazį ni'

A B C 6) naanéé ńt'éé'

A B C 7) naanéé néé'

A B C 8) naané'

A B C 9) naanéé ńt'éé' dah diilwod

A B C 10) naanéé ńt'éé' dah diiyá

A B C 11) hooneeni

A B C 12) kó naazne'

A B C 13) ííyá

A B C 14) daane'é yaa naagháá ńt'éé'

33. Ashkíish ha'át'íí yaa naagháá ńt'éé'? (Picture of boy standing by drum)

A B C 1) ashkii ásaa' niłaa ńt'éé'

A B C 2) ashkii ásaa' yinaanéé ńt'éé'

A B C 3) ashkii ásaa' yeenaanéé ńt'éé'

A B C 4) ashkii ásaa' yaa ńt'éé'

A B C 5) ashkii naanéé ńt'éé'

A B C 6) naanéé ńt'éé'

A B C 7) naanéé néé'

A B C 8) ásaa' yiłałnéé ńt'éé'

A B C 9) ásaa' yiłałnéé

A B C 10) ásaa' łałńt'éé'

A B C 11) ásaa' iłałnéé'

A B C 12) ła'i łałnéé'

A B C 13) łał ńt'éé'

A B C 14) ásaa' tłaané

34. Ashkíísh ha'át'íí yaa nídiidzá? (Picture of boy with blocks)

A B C 1) ashkii daané'é yee ńdiine'

A B C 2) daané'é yee ńdiine'

A B C 3) naane'e yee ńdiine'

A B C 4) ashkii ńdine'

A B C 5) ashkii naané

A B C 6) kii né'

A B C 7) ńdiine'

A B C 8) naa ńdiine'

A B C 9) tsin daané

A B C 10) tsin diiní

A B C 11) ńdííne'

A B C 12) ńdaané'

A B C 13) dííne'

A B C 14) naanééné

A B C 15) naanéé yaa ndiidzá

35. Ashkíísh ha'át'íí yaa nídiidzá? (Picture of boy with dog)

A B C 1) ashkii łéęchąą'í yiłńdiine'

A B C 2) łéęchąą'í yiłńdiine'

A B C 3) łéęchąą'í łńdiine'

A B C 4) łéęchąą'í yiłnaané'

A B C 5) łéęchąą'í yeenaané'

A B C 6) łéęchąą'í łaané'

A B C 7) łéęchąą'í biłaané'

A B C 8) łéęchąą'í yiłaané'

A B C 9) ashkii łéęchąą'í yiłaané'

A B C 10) ashkii łéęchąą'í łaané'

A B C 11) łéęchąą'í łaané'

A B C 12) łéęchąą'í diine'

A B C 13) ashkii naané'

A B C 14) ashkii łéęchąą'í naané'

A B C 15) łéęchąą'í yaa naagháá

A B C 16) łéęchąą'í yiyaa naagháá

A B C 17) łéęchąą'í łagháá

A B C 18) łéęchąą'í yaa ńdiidzá

A B C 19) łéęchąą'í yił

36. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of man, and woman holding baby)

A B C 1) hastiin dóó asdzán awéé' dah yoołtį́į́ł
A B C 2) hastiin dóó asdzán awéé' dah yoołtéél
A B C 3) awéé' amá dah yoołtį́į́ł
A B C 4) amá awéé' dah yoołtį́į́ł
A B C 5) amá awéé' yoołtį́į́ł
A B C 6) awéé' amá yootį́į́ł
A B C 7) awéé' amá yootłał
A B C 8) awéé' bimá dayiłtį́į́ł
A B C 9) awéé' nayoołtį́į́ł
A B C 10) awéé' dah yoołtį́į́ł
A B C 11) azhé'é dóó amá dóó awéé'
A B C 12) awéé' amá azhé'é
A B C 13) bibáá sindá
A B C 14) hastiin sizná

37. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of a cat eating and a cat playing)

A B C 1) mósí iyáá dóó mósí naané
A B C 2) mósí iyáá mósí naané
A B C 3) mósí iyáá mósí ła'a naané
A B C 4) mósí ła'a iyáá mósí naané
A B C 5) mósí ła' iyáá mósí ła' naané
A B C 6) mósí ła' iyáá ła'i naané
A B C 7) mósí ła' iyáá ła naané
A B C 8) mósí iyáá dóó naané
A B C 9) ła' mósí iyáá łe'éé mósí iya naané
A B C 10) mósí iyáá ... naané
A B C 11) mósí iyáá dóó ła' naané
A B C 12) mósí iyáá ła'i naané
A B C 13) mósí naané
A B C 14) mósí jooł yaa naané
A B C 15) mósí daa idlá

38. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of boy on horse)

A B C 1) ashkii łį́į́' yikáá dah sidá

A B C 2) ashkii łį́į́' bikáá dah sidá

A B C 3) ashkii łį́į́' káá dah sidá

A B C 4) ashkii łį́į́' káádi sidá

A B C 5) ashkii łį́į́' káá sidá

A B C 6) ashkii łį́į́' nkáá sidá

A B C 7) ashkii łį́į́' biłiiłdlosh

A B C 8) ashkii łį́į́ biłiildlosh

A B C 9) ashkii łį́į́ łiłdlosh

A B C 10) łį́į́' biłiłdlosh

A B C 11) łį́į́' ashkii biłildlosh

A B C 12) káá łiłíí' káá dah sidá

A B C 13) łį́į́' káá dah sidá

A B C 14) łį́į́' ashkii káá dah sidá

A B C 15) ashkii łį́į́' sizzí

A B C 16) ashkii łį́į́' biłsizzą́

A B C 17) ashkii łį́į́' biłiliwoł

A B C 18) ashkii łį́į́' łiliwoł

A B C 19) łį́į́' biłilowoł

A B C 20) łį́į́' iluwoł

A B C 21) łį́į́' yinaagháá

A B C 22) łį́į́' yiłnaagháá

A B C 23) łį́į́' naané

A B C 24) łį́į́' yee naané

A B C 25) łį́į́' yop

A B C 26) ashkii dóó łį́į́'

A B C 27) łį́į́' biłgáh

39. Díísh dait'éego naash ch'aą bee shił hólne'? (Picture of drum and doll under a table)

A B C 1) awéeshchíín dóó ásaa' bikáá'adání yaa sidá

A B C 2) awéeshchíín dóó ásaa' bikáá'adání yaa siníł

A B C 3) awéeshchíín dóó ásaa' bikáá'adání yaadi siníł

A B C 4) awéeshchíín bikáá'adání yaa sidá

A B C 5) awéeshchíín bikáá'adání yiyaa sidá

A B C 6) awéeshchíín bikáá'adání biyaa sidá

A B C 7) awéeshchíín bikáá'adání iyaadi sidá

A B C 8) awéeshchíín bikáá'adání tł'aadi sidá

A B C 9) awéeshchíín bikáá'adání tł'aaji sidá

A B C 10) awéeshchíín bikáá'adání siníł

A B C 11) awéeshchíín ásaa' bikáá'adání biyáá sidá

A B C 12) awéeshchíín dóó ásaa'

A B C 13) sidá

A B C 14) bikáá'adání yaadi sidá

A B C 15) bikáá'adání biyaa sidá

A B C 16) ásaa' bikáá'adání iyyaji

A B C 17) ásaa' bikáá'adání bikáádi

A B C 18) ásaa' bikáá'adání iyáá

A B C 19) bikáá'adání iyáá

A B C 20) bikáá'adání biyáádi

A B C 21) bikáá'adání yaa awéeshchíín sidá

A B C 22) awéeshchíín bikáá'adání bik'áádi

40. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of boy pulling doll in wagon)

A B C 1) ashkii awéeshchíín tsinaabąąs yiłołbąs
A B C 2) ashkii tsinaabąąs awéeshchíín yiłołbąs
A B C 3) ashkii tsinaabąąs awéeshchíín yołbąs
A B C 4) ashkii tsinaabąąs awéeshchíín łołbąs
A B C 5) tsinaabąąs ashkii awéeshchíín yiłołbąs
A B C 6) awéeshchíín tsinaabąąs yiłolbąs
A B C 7) ashkii tsinaabąąs awéeshchíín niłbąs
A B C 8) ashkii tsinaabąąs awéeshchíín yiłniłbąs
A B C 9) awéeshchíín tsinaabąąs yołbąs
A B C 10) ashkii tsinaabąąs yołbąs
A B C 11) ashkii tsinaabąąs yiłbąs
A B C 12) ashkii tsinaabąąs niiyołbąs
A B C 13) ashkii awéeshchíín biłołbąs
A B C 14) ashkii awéeshchíín yiłołbąs
A B C 15) awéeshchíín yiłołbąs
A B C 16) awéeshchíín biłolbąs
A B C 17) awéeshchíín yołbąs
A B C 18) tsinaabąąs yiłołbąs
A B C 19) tsinaabąąs yołbąs
A B C 20) ashkii awéeshchíín yiłnaané
A B C 21) ashkii yiłołbąs
A B C 22) ashkii biłiłbąs
A B C 23) yiłołbąs
A B C 24) ashkii tsinaabąąs yáá yiłołbąs
A B C 25) tsinaabąąs ashkii yiłołbas

1. red

A B C 1) łichǫ́ǫ́'
A B C 2) łichii'
A B C 3) lichíí'
A B C 4) łitsíí'
A B C 5) tłitsǫ́ǫ́'
A B C 6) łichíí'ó
A B C 7) chíí'
A B C 8) dichíí'
A B C 9) łitso

2. yellow

A B C 1) łitso
A B C 2) tłitso
A B C 3) łitswóh
A B C 4) łitsogo
A B C 5) tso
A B C 6) łichó
A B C 7) łichwo
A B C 8) tłichwoh

7. orange

A B C 1) łitso
A B C 2) łitsxo
A B C 3) łitswoh
A B C 4) łicho
A B C 5) łichwoh
A B C 6) tsxoh
A B C 7) łéécha nanddiitł'i

5. brown

A B C 1) dibełchí'
A B C 2) denłchǫ́ǫ́,
A B C 3) bełchíí
A B C 4) nbełchí'i
A B C 5) niłin
A B C 6) łibah
A B C 7) dibełchíígo nasts'ąą'
A B C 8) debełchíí nano łichíí'

6. green

A B C 1) dootł'ish
A B C 2) tsedidee
A B C 3) chididee
A B C 4) łitł'iz
A B C 5) taatł'id
A B C 6) taditł'is
A B C 7) táátł'in
A B C 8) ch'il bit'aa'
A B C 9) ch'il bit'aa' nahalengo nashch'ąą'
A B C 10) ch'il bit'aa' nahalengo
A B C 11) ch'il bit'aa' nahano
A B C 12) ch'il bit'aa' naaloo dootł'ish
A B C 13) ch'il nahalǫǫ dootł'ish
A B C 14) ch'il binahalini dootł'ish

3. blue

A B C 1) dootł'ish
A B C 2) dootł'izh
A B C 3) dootł'is
A B C 4) tsédidee
A B C 5) łitsíí'
A B C 6) łichíí'
A B C 7) táátíín
A B C 8) tł'iis
A B C 9) dóódli
A B C 10) dóódli nahaningo dootł'ish
A B C 11) dóóli nahalǫǫ dootł'ish
A B C 12) didlaa naadootłish
A B C 13) to dootł'ish
A B C 14) dóótł'ish naano
A B C 15) dóótł'imaz

4. black

A B C 1) łizhin
A B C 2) tłizhin
A B C 3). łizhingo
A B C 4) łizhinoh
A B C 5) tsizhin

8. purple

A B C 1) tsididee

A B C 2) dootł'ish

A B C 3) tsidi

A B C 4) dóóli

A B C 5) tsididéé nahalingo dootł'ish

A B C 6) tsididéé nahaloo dootł'ish

A B C 7) tsididéé naaloo dootł'ish

A B C 8) tsididéé naanoo dootł'ish

A B C 9) tsididéé nastsąą'

A B C 10) tsididéé naschąą'

A B C 11) tá' tsididéé

9. white

A B C 1) łigai

A B C 2) gai

A B C 3) łiko

A B C 4) łigaigo

A B C 5) jigai

15. tree

A B C 1) t'iis

A B C 2) ch'il

A B C 3) ch'in

A B C 4) dígah

A B C 5) t'iis íí'á

A B C 6) gad

13. horse

A B C 1) łį́į́'

A B C 2) tłį́į́'

19. dog

A B C 1) łééchąą'í

A B C 2) tłééchąą'í

APPENDIX C
RESULTS OF NATIVE SPEAKER JUDGMENTS

23. Ashkíísh háadi sidá? (Picture of boy in wagon)

1. tsinaabąąs yii' sidá (4)
   A - A B C D E F G
2. ashkii tsinaabąą yii' sidá (1)
   A - A B C D E F G
3. ii' sidá (7)
   A - A B C E F G
   B - D
4. ashkii tsinaabąąs biyi' sidá (3)
   A - E F
   B - B D G
   C - A C
5. tsinaabąąs yii'dá (5)
   A - E
   B - B C D F G
   C - A
6. tsinaabąąs biyi' sidá (6)
   A - B F
   B - D E G
   C - A C
7. ashkii tsinaabąąs áyi' sidá (2)
   B - A D E F
   C - B C G
8. naaní (9)
   B - D E
   C - A C F G
9. káádi (8)
   C - A C D E F G
10. 'wagon'
    a. tsinaabąąs (a)
       A - A B C D E F G
    b. sinaabąąs (c)
       A - C D
       B - A B E F G
    c. chinaabąąs (b)
       B - A B C D E F G
    d. tinaabąąs (d)
       B - B C D E F
       C - A G
    e. bąąs (e)
       A - B
       B - C G
    f. tsitsaa' (f)
       A - B
       B - D
       C - A C E F G
    g. łįį' ts'aa' (h)
       A - B
       B - F
       C - A C D E G
    h. ts'aa' (g)
       B - D
       C - A B C D F G
11. 'boy'
    a. ashkii (a)
       A - A B C D E F G
    b. shkii (b)
       A - C F G
       B - A B E
       C - D
    c. kii (c)
       B - C D E F G
       C - A B
12. 'seated'
    a. sidá (a)
       A - A B C D E F G
    b. stá (b)
       A - G
       B - A B C D F
       C - E
    c. dá (c)
       B - C D E F G
       C - A
    d. sinda (d)
       A - B
       B - E
       C - A C D F G
    e. shinda (e)
       B - B
       C - A C D E F G

24. Ashkíísh háadi sidá? (Picture of boy in front of wagon)

1. yidaaji sidá (14)
   A - B C E F G
   B - D
   C - A
2. ashkii tsinaabąąs yíigha sidá(12)
   A - B C E F G
   B - D
   C - A
3. ní'i sidá (15)
   A - C D G
   B - A E F
4. ashkii tsinaabąąs yidaayi sidá(1)
   A - B C E F
   B - D G
   C - A
5. tsinaabąąs idaaji (19)
   A - B E
   B - A C D F G
6. bidáąji (23)
   A - B G
   B - D E F
   C - A C
7. ashkii tsinaabąąs ilaadi sidá(8)
   A - B
   B - C D F G
   C - A E
8. tsinaabąąs illaji (16)
   A - B
   B - C D F G
   C - A E
9. tsinaabąąs laaji (17)
   B - B C D E F G
   C - A
10. tsinaabąąs bidaaji (20)
    A - D E
    B - F
    C - A C G
11. tsinaabąąs bidaayi sidá (4)
    A - B
    B - D F G
    C - A C E
12. tsinaabąąs biláádi sidá (6)
    A - E
    B - D G
    C - A C F
13. ashkii tsinaabąąs dláá sidá (11)
    B - D E F G
    C - A C
14. biyaago (25)
    A - B
    B - D E F
    C - A C G
15. ashkii tsinaabąąs bidaayi sidá (2)
    A - F
    B - D G
    C - A B C E
16. ashkii tsinaabąąs ilaadi sidá (7)
    A - B
    B - D G
    C - A C E F
17. ashkii tsinaabąąs illdzi sidá (9)
    B - E E G
    C - A C D
18. tsinaabąąs ts'aaji (21)
    B - E F G
    C - A C D
19. tsinaabąąs biláá sidá (5)
    B - D G
    C - A C E F
20. yiskáá (24)
    B - C G
    C - A D E F
21. ashkii tsinaabąąs náádzi sidá (10)
    B - D
    C - A C E F G
22. tsinaabąąs illadzi (18)
    B - E
    C - A C D F G
23. ashkii bidaayi sidá (3)
    B - F
    C - A B C D E G
24. ashkii tsinaabąąs dáayi (13)
    B - E
    C - A B C E F G
25. tsinaabąąs idáałǫ (22)
    C - A C D E F G

25. Ashkíísh háadi sidá? (Picture of boy in back of wagon)

1. tsinaabąąs yine'di sidá (12)
   A - A C E F
   B - D
2. nǫ'ǫ́ (25)
   A - D E F G
   B - A B C
3. tsinaabąąs bine'ji sidá (11)
   A - B D E F
   B - G
   C - A
4. tsinaabąąs yikéédi (17)
   A - B C F
   B - D E G
   C - A
5. ashkii tsinaabąąs ikéé'di sidá (1)
   A - B F
   B - C D E G
   C - A
6. ashkii tsinaabąąs iné'dii sidá (4)
   A - B F
   B - A C D E
   C - G
7. ashkii tsinaabąąs kéé'di sidá (3)
   A - E
   B - B C D F G
   C - A
8. tsinaabąąs ikéé'di sidá (8)
   A - F
   B - C D E G
   C - A
9. tsinaabąąs bikéédi sidá (9)
   A - B E F
   B - D
   C - A C G
10. tsinaabąąs bitsį́įgo sidá (14)
    A - B D E
    B - F
    C - A C G
11. kee'di sidá (23)
    A - B
    B - C D E F G
    C - A
12. ashkii tsinaabąąs bikéé'di sidá (2)
    A - E F
    B - B D
    C - A C G
13. ashkii tsinaabąąs biné'dzi sidá (5)
    B - A B D E F G
    C - C
14. tsinaabąąs tsį́įgo sidá (15)
    B - B C D E F G
    C - A
15. iné'di sidá (24)
    A - E
    B - C D G
    C - A F
16. tsinaabąąs bine'di sidá (7)
    A - B E
    B - D
    C - A C F G
17. tsinaabąąs bine' (19)
    B - A D E F G
    C - B C
18. tsinaabąąs kéé' sidá (10)
    B - C D E F G
    C - A B
19. tsinaabąąs ne' sidá (13)
    B - A B E G
    C - C D F
20. tsinaabąąs bine'dęę́' sidá (6)
    A - D
    C - A C E F G
21. tsinaabąąs bine' sidá (16)
    B - D F
    C - A C E G
22. daajígo (22)
    B - B F
    C - A C D E G
23. ashkii yikéédi sidá (18)
    C - A B C D E F G

26. Ashkíísh háadi sidá? (Picture of boy under table)

1. ashkii bikáá'adání yiyaa sidá (3)
   A - A B C D E F G
2. bikáá'adání iyaa (18)
   A - C E F G
   B - A D
3. bikáá'adání iyaadi (24)
   A - C E F G
   B - A D
4. ashkii bikáá'adání iyaadi sidá (1)
   A - B C F G
   B - A D E
5. ashkii bikáá'adání tł'áádi sidá (7)
   A - A E F G
   B - B C D
6. bikáá'adání iyaa sidá (9)
   A - B C E G
   B - A D F
7. bikáá'adání iyaadi sidá (10)
   A - C E G
   B - A D F
8. bikáá'adání biyaadi (25)
   A - B D E F
   B - A
   C - C G
9. bikáá'adání biyaa (19)
   A - D E
   B - A E
   C - C G
10. bikáá'adání biyaagi (22)
   A - E F
   B - A D
   C - C G
11. bikáá'adání tł'ááne' (23)
   A - F
   B - B C D E G
   C - A
12. biyaadi sidá (15)
   A - B E
   B - D G
   C - A C F
13. ashkii bikáá'adání yaa sidá (4)
   B - C D E F G
   C - A B
14. bikáá'adání biyaadi sidá (11)
   A - E
   B - D
   C - A C F G
15. biyaa ni' sidá (16)
   A - E
   B - D
   C - A C F G
16. bikáá'adání diyaadi (26)
   B - A D E
   C - C F G
17. íiyaa sidá (13)
   B - D E F
   C - A B C G
18. bikáá'adání yaa (17)
   B - C D G
   C - A B E F
19. ashkii bikáá'adání bitł'áá'i sidá (16)
   B - D E
   C - A C F G
20. bikáá'adání bitł'ááł (20)
   B - A D
   C - C E F G
21. bikáá'adání biyaa sidá (8)
   B - D E
   C - A B C F G
22. bikáá'adání diyaa sidá (12)
   B - D E
   C - A B C F G
23. niiyaa sidá (14)
   A - E
   C - A B C D F
24. ashkii bikáá'adání biyaa sidá (2)
   B - D
   C - A B C E F G
25. bikáá'adání sidá (21)
   B - E
   C - A B C D F G

27. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy holding stick)

1. ashkii tsin dah yootį́į́ł (2)
   A - A B C D E F G
2. ashkii tsin yootį́į́ł (1)
   A - A B C D E F G
3. naané (19)
   A - A B C D E F G
4. tsin dah yootį́į́ł (6)
   A - A B C D F G
   B - E
5. tsin yootį́į́ł (7)
   A - A B C F G
   B - D E
6. tsin nei tyín (13)
   A - A B C F G
   B - D E
7. ashkii tsin néédi tą́ą́h (3)
   A - B C E F
   B - D G
   C - A
8. ashkii tsin dah yoojih (15)
   A - B C E F
   B - D
   C - A G
9. tsin dah yoojih (16)
   A - B C E F
   B - D
   C - A G
10. tsin yoojih (17)
   A - B C E F
   B - D
   C - A G
11. ashkii tsin ńł'ęh (5)
   A - E
   B - A B C F G
   C - D
12. ashkii tsin yíł'ęh (4)
   B - A B C E F G
   C - D
13. tsin nei til (14)
   A - G
   B - A B D
   C - C E F
14. ashkii tsin yiłnaané (20)
   B - A B D E F
   C - C G
15. tsin naatį́į́ł (8)
   B - B D E F
   C - A C G
16. tsin neitį́į́ł (9)
   B - A B D E
   C - C F G
17. ashkii tsin yinítł'įh (12)
   B - A B E F
   C - C D G
18. tsin jih (18)
   B - B C D
   C - A E F G
19. dadii dzá' (22)
   A - B
   B - A
   C - C D E F G
20. níídii dzá' (23)
   B - B C E
   C - A D F G
21. ashkii tsin yinítł'ą́h (10)
   B - B E
   C - B C D F G
22. ashkii tsin yiníłą́h (11)
   B - B E
   C - A C D F G
23. ashkii ná (21)
   B - A
   C - C D E F G

28. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy eating)

1. ashkii ayą (1)
   A - A C D E F G
   B - B
2. ayą (4)
   A - A C D E F G
   B - B
3. ashkii iyą (2)
   A - A B C G
   B - D E F
4. iyą (5)
   A - B C G
   B - A D E F
5. ashkii yą (3)
   B - A C D E F G
   C - B
6. iighąą (6)
   B - G
   C - A B C D E F

29. Ashkíísh ha'át'íí yaa naaghá? (Picture of boy playing with blocks)

1. naané (1)
   A - A B C D E F G
2. daane'é yee naané (4)
   A - A C D F G
   B - E
3. naaná (2)
   B - A B C D F G
   C - E
4. daanaané (5)
   B - B E
   C - A C D F G
5. daane'é yee yaa naaghá (3)
   B - B
   C - A C D E F G

30. Apchíníish ha'át'íí yaa naa'aash? (Picture of boy and girl playing with dolls)

1. ałchíní awéeshchíín yee naané (1)
   A - A B C D E F G
2. ałchíní naané (2)
   A - A B C D E F G
3. naané (7)
   A - A B C D E F G
4. ashkii dóó at'éed naané (3)
   A - A B C D F G
   B - E
5. awéeshchíín yee naané (5)
   A - A B C D F G
   B - E
6. áá łaa naané (10)
   A - A E G
   B - B C D F
7. naaná (8)
   B - A C D E F G
   C - B
8. awéeshchíín diłyoołtíił (11)
   B - A B C E F G
   C - D
9. awéeshchíín diyootyé (12)
   B - A B C E F G
   C - E
10. awéeshchíín niłtyé (13)
   A - E
   B - A C F G
   C - B D
11. awéeshchíín yiłtyé (14)
   A - B E
   B - A F
   C - C D G
12. awéé dóó ashkii niłtéh (15)
   A - E
   B - D F
   C - A C G
13. ashkii at'éed naané (4)
   B - B D E F
   C - A C G
14. awéeshchíín naané (6)
   B - B D E
   C - A C F G
15. daaná (9)
   B - B E
   C - A C D F G
16. aná yaana'ash (16)
   C - A B C D E F G
17. łaana éyaa naané (17)
   C - A C D E F G

31. Alchíníish ha'át'íí yaa naa'aash? (Picture of boy and girl eating)

1. alchíní iiyáá (1)
   A - A B E F
   B - C D G
2. ashkii dóóat'ééd iyáá (2)
   A - A B E F
   B - C D G
3. áá łaa ayą́ą́ (8)
   A - A E F G
   B - B C D
4. ayáá (5)
   A - A B
   B - C D E F G
5. iiyáá (6)
   A - A E
   B - B C D F G
6. eeyáá (7)
   A - A E
   B - B C D F G
7. ashkii at'ééd iiyáá (3)
   B - B D E F G
   C - A C
8. ayáá bahadi (10)
   A - B
   B - C E G
   C - A D F
9. ch'iyáán (4)
   A - E
   B - D F
   C - A B C G
10. da' iiyą́ą́ (9)
   A - B
   B - D E
   C - A C F G
11. yáá (11)
   B - B D
   C - A C E F G

32. Ashkíish ha'át'íí yaa naagháá ńt'éé'? (Picture of boy walking away from blocks)

1. ashkii tsin yee naanéé ńt'éé' (1)
   A - A B C D E F G
2. naanéé ńt'éé' dah diilwod (9)
   A - A B C D E F G
3. daane'é yaa naagháá ńt'éé' (14)
   A - A C D E F G
4. naanéé ńt'éé' (6)
   A - A B C D F G
   B - E
5. naanéé ńt'éé' dah diiyá (10)
   A - A C D F G
   B - E
6. ashkii naanéé ńt'éé' (4)
   A - A B C D G
   B - F
   C - E
7. kó naazne' (12)
   A - A E F G
   B - C
   C - D
8. naanéé néé' (7)
   A - G
   B - A B C D E F
9. ashkii yee naanéé ńt'éé' (2)
   A - E
   B - A B D F
   C - C G
10. ashkii tsin yazhi né (3)
   B - A B D E F G
   C - C
11. naané' (8)
   A - E
   B - A B C
   C - D F G
12. ííyá (13)
   A - E
   C - A C D F G
13. tsin naazį́ ni' (5)
   B - E
   C - A C D F G
14. hooneeni (11)
   B - E
   C - A C D F G

33. Ashkíísh ha'át'íí yaa naaghá́á ńt'éé'? (Picture of boy standing by drum)

1. ashkii naanéé ńt'éé' (5)
   A - A B C D E F G
2. naanéé ńt'éé' (6)
   A - A B C D E F G
3. ashkii ásaa' yeenaanéé ńt'éé' (3)
   A - A C D F G
   C - E
4. ashkii ásaa' yinaanéé ńt'éé' (2)
   A - B E F
   B - A C D G
5. naanéé néé' (7)
   A - G
   B - A B C D E F
6. ásaa' łałńt'éé' (10)
   A - E
   B - A B C D F G
7. ásaa' yiłałnéé (9)
   B - A B C D E F G
8. ashkii ásaa' niłaa ńt'éé' (1)
   A - F
   B - A D E G
   C - B C
9. ásaa' yiłałnéé (8)
   A - B F
   B - A D
   C - C E G
10. ásaa' iłałnéé' (11)
   B - A C D E G
   C - F
11. łał ńt'éé' (13)
   B - A E F G
   C - C D
12. ásaa' tłaané (14)
   B - A
   C - C D E F G
13. ashkii ásaa' yaa ńt'éé' (4)
   C - A B C D E F G
14. ła'i łałnéé' (12)
   C - A B C D E F G

34. Ashkíísh ha'át'íí yaa nídiidzá? (Picture of boy with blocks)

1. ashkii daané'é yee ńdiine' (1)
   A - A B C D E F G
2. daané'é yee ńdiine' (2)
   A - A C D E F G
   B - B
3. ńdiine' (7)
   A - A C D E F G
   B - B
4. ashkii ńdine' (4)
   A - A E F
   B - B C D G
5. ńdííne' (11)
   A - D E
   B - A B C F
   C - G
6. naanéé yaa ndiidzá (15)
   A - E
   B - A B C D F G
7. naane'e yee ńdiine' (3)
   B - A C D E F G
8. tsin daané (9)
   A - E
   B - A C F G
   C - D
9. kii né' (6)
   B - A B C D E G
   C - F
10. tsin diiní (10)
   B -A B C E F G
   C -D
11. naanééné (14)
   B -A B C D E F
   C -G
12. naa ńdiine' (8)
   B -A C E F G
   C -D
13. ashkii naané (5)
   A -B
   B -C D E
   C -A F G
14. dííne' (13)
   B -A B C D F
   C -E G
15. ńdaané' (12)
   A -B
   B -D E
   C -A C F G

35. Ashkíísh ha'át'íí yaa nídiidzá? (Picture of boy with dog)

1. ashkii łééchąą'í yiłńdiine' (1)
   A - A B C D E F G
2. łééchąą'í yiłńdiine' (2)
   A - A C D E F G
3. łééchąą'í łńdiine' (3)
   A - A C E F G
   C - D
4. łééchąą'í yaa ńdiidzá (18)
   A - C E F G
   B - D
   C - A
5. łééchąą'í yaa naagháá (15)
   A - B E
   B - C D F
   C - A G
6. łééchąą'í łaané' (6)
   A - E
   B - A C D F
   C - G
7. łééchąą'í yiłnaané' (4)
   B - A C D E F G
8. łééchąą'í biłaané' (7)
   A - E
   B - C D F
   C - A G
9. łééchąą'í yiłaané' (8)
   A - E
   B - C D F
   C - A G
10. ashkii łééchąą'í yiłaané' (9)
    A - E
    B - C D F
    C - A G
11. ashkii łééchąą'í łaané' (10)
    A - E
    B - C D F
    C - A G
12. łééchąą'í diine' (12)
    B - A C E F G
    C - D
13. ashkii naané' (13)
    A - E
    B - C D
    C - A F G
14. łééchąą'í yeenaané' (5)
    B - D E
    C - A C F G
15. ashkii łééchąą'í naané' (14)
    B - D E
    C - A C F G
16. łééchąą'í yiyaa naagháá (16)
    B - D
    C - A B C E F G
17. łééchąą'í łagháá (17)
    C - A C D E F G
18. łééchąą'í yił (19)
    C - A C D E F G

36. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of man, and woman holding baby)

1. hastiin dóó asdzán awéé' dah yooltéél (2)
   A - A C D E F
2. azhé'é dóó amá dóó awéé' (11)
   A - A C E F G
   B - D
3. awéé' amá azhé'é (12)
   A - A C F G
   B - D E
4. awéé' nayooltįįł (9)
   A - A E F
   B - C D G
5. amá awéé' dah yooltįįł (4)
   A - D F
   B - A C E G
6. awéé' dah yooltįįł (10)
   A - E F
   B - A C D G
7. amá awéé' yooltįįł (5)
   A - D F
   B - A B C E G
8. hastiin dóó asdzán awéé' dah yooltįįł (1)
   A - D
   B - A B C E F
   C - G
9. hastiin sizná (14)
   B - C E F G
   C - A B D
10. awéé' amá dah yooltįįł (3)
    B - D F G
    C - A B C E
11. awéé' bimá dayiłtįįł (8)
    B - D G
    C - A C E F
12. awéé' amá yootįįł (6)
    B - D E
    C - A B C F G
13. awéé' amá yootłał (7)
    B - F G
    C - A B C D E
14. bibáá sindá (13)
    C - A B C D E F G

37. <u>Díísh dait'éego naash ch'aą bee shił hólne'</u>? (Picture of a cat eating and a cat playing)

1. mósí iyáá dóó mósí naané (1)
   A - A D E F G
   B - C
2. mósí iyáá dóó ła' naané (11)
   A - C E F
   B - A D G
3. mósí iyáá ła'i naané (12)
   A - C E F
   B - A D G
4. mósí iyáá mósí naané (2)
   A - B F G
   B - A C D E
5. mósí ła' iyáá ła'i naané (6)
   A - B C F
   B - A D E G
6. mósí ła' iyáá mósí ła' naané (5)
   A - E F
   B - A D G
7. ła' mósí iyáá ła'éé mósí iya naané (9)
   A - A C E
   B - D F
   C - G
8. mósí naané (13)
   A - C G
   B - A D E F
9. mósí ła' iyáá ła naané (7)
   A - E F
   B - A B C D G
10. mósí iyáá mósí ła'a naané (3)
   B - A C D E F G
11. mósí ła'a iyáá mósí naané (4)
   B - A C D E F G
12. mósí iyáá ... naané (10)
   A - F
   B - A D E G
   C - C
13. mósí joołyaa naané (14)
   B - A B C D E F G
14. mósí iyáá dóó naané (8)
   A - E
   B - A D F
   C - C G
15. mósí daa idlá (15)
   B - A D E F
   C - C G

38. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of boy on horse)

1. ashkii łį́į́' yikáá dah sidá (1)
   A - A B C D E F G
2. ashkii dóó łį́į́' (26)
   A - A C E F G
   B - D
3. ashkii łį́į́' biłiildlosh (8)
   A - C D F G
   B - E
4. ashkii łį́į́' biłiiłdlosh (7)
   A - A B D E
   B - C F G
5. ashkii łį́į́' biłiliwoł (17)
   A - A B E F
   B - C D G
6. łį́į́' iluwoł (20)
   A - A E F
   B - C D G
7. ashkii łį́į́' káádi sidá (4)
   A - A E F
   B - B C D G
8. ashkii łį́į́' biłsizǫ́ (16)
   A - A B E
   B - C D F G
9. ashkii łį́į́' łiliwoł (18)
   A - A E F
   B - B C D G
10. łį́į́' biłilowoł (19)
   A - E F
   B - A C D G
11. łį́į́' yee naané (24)
   A - E F
   B - A C D G
12. ashkii łį́į́' káá dah sidá (3)
   A - F G
   B - A C D G
13. ashkii łį́į́' káá sidá (5)
   B - A C D E F
   C - G
14. łį́į́' biłiłdlosh (10)
   A - C G
   B - D E F
   C - A
15. łį́į́' káá dah sidá (13)
   A - F
   B - A C D E G
16. ashkii łį́į́' łiłdlosh (9)
   A - G
   B - A B C D E F
17. łį́į́' yinaagháá (21)
   A - B F
   B - A C E G
   C - D
18. łį́į́' biłgáh (27)
   B - A B C D E F
   C - G
19. káá łiłíí' káá dah sidá (12)
   B - A C E G
   C - B D F
20. ashkii łį́į́' sizzí (15)
   B - A B D E
   C - C F G
21. łį́į́' naané (23)
   B - C D E F G
   C - A
22. łį́į́' ashkii biłildlosh (11)
   B - D
   C - A C E F G
23. łį́į́' ashkii káá dah sidá (14)
   B - D
   C - A C E F G
24. łį́į́' yiłnaagháá (22)
   B - D
   C - A C E F G
25. ashkii łį́į́' nkáá sidá (6)
   B - D
   C - A C E F G
26. ashkii łį́į́' bikáá dah sidá (2)
   B - D
   C - A B C E F G
27. łį́į́' yoł (25)
   C - A B C D E F G

39. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of drum and doll under a table)

1. awéeshchíín dóó ásaa' bikáá'adání yaadi siníł (3)
   A - D E F G
   B - A C
2. awéeshchíín bikáá'adání yiyaa sidá (5)
   A - C D F G
   B - A E
3. awéeshchíín bikáá'adání iyaadi sidá (7)
   A - C D F G
   B - A B E
4. awéeshchíín dóó ásaa' bikáá'adání yaa siníł (2)
   A - E F G
   B - A C D
5. awéeshchíín dóó á saa' (12)
   A - C F G
   B - A D E
6. awéeshchíín bikáá'adání yaa sidá (4)
   A - E F
   B - A C D G
7. awéeshchíín bikáá'adání tł'aadi sidá (8)
   A - E F
   B - A C D G
8. bikáá'adání yaa awéeshchíín sidá (21)
   A - F G
   B - A C D E
9. awéeshchíín bikáá'adání tł'aaji sidá (9)
   A - F
   B - A C D E G
10. awéeshchíín dóó ásaa' bikáá'adání yaa sidá (1)
   B - A D E F G
   C - C
11. bikáá'adání yaadi sidá (14)
   B - D E
   C - A C F G
12. awéeshchíín bikáá'adání bik'áádi (22)
   A - F
   B - E
   C - A B C D G
13. awéeshchíín bikáá'adání siníł (10)
   A - F
   C - A C D E G
14. awéeshchíín ásaa' bikáá'adání biyáá sidá (11)
   B - D E
   C - A C F G
15. sidá (13)
   B - C D
   C - A E F G
16. bikáá'adání biyaa sidá (15)
   B - D E
   C - A C F G
17. awéeshchíín bikáá'adání biyaa sidá (6)
   B - D E
   C - A B C F G

39. (continued)

18. ásaa' bikáá'adání bikáádi (17)
    B - F
    C - A C D E G
19. ásaa' bikáá'adání iyáá (18)
    B - D
    C - A C E F G
20. bikáá'adání iyáá (19)
    B - D
    C - A C E F G
21. bikáá'adání biyáádi (20)
    B - D
    C - A C E F G
22. ásaa' bikáá'adání iyaaji (16)
    C - A C D E F G

40. Díísh dait'éego naash ch'ąą bee shił hólne'? (Picture of boy pulling doll in wagon)

1. ashkii awéeshchíín yiłołbąs (14)
    A - A C D E F G
2. ashkii tsinaabąąs yołbąs (10)
    A - A B C D F G
    B - E
3. ashkii awéeshchíín tsinaabąąs yiłołbąs (1)
    A - A B E F G
    B - C D
4. tsinaabąąs yołbąs (19)
    A - B C D E G
    B - A
    C - F
5. awéeshchíín yiłołbąs (15)
    A - B C D G
    B - A E
    C - F
6. ashkii tsinaabąąs awéeshchíín yiłniłbąs (8)
    A - E F G
    B - D
    C - A C
7. ashkii awéeshchíín yiłnaané (20)
    A - D
    B - A C E F G
8. yiłołbąs (23)
    A - E F G
    B - C
    C - A D
9. tsinaabąąs ashkii awéeshchíín yiłołbąs (5)
    A - E F G
    B - C D
    C - A B
10. ashkii tsinaabąąs awéeshchíín yiłołbąs (2)
    A - D
    B - B C E F G
    C - A
11. ashkii tsinaabąąs niiyołbąs (12)
    B - A C D E F
    C - G

40. (continued)

12. tsinaabąąs yiłołbąs (18)
    A - E F
    B - D
    C - A B G
13. ashkii tsinaabąąs yáá yiłołbąs (24)
    B - A D F G
    C - E
14. ashkii tsinaabąąs yiłbąs (11)
    B - A C D G
    C - E F
15. ashkii biłiłbąs (22)
    A - E
    B - D G
    C - A C F
16. awéeshchíín tsinaabąąs yołbąs (9)
    A - G
    B - D F
    C - A B C E
17. awéeshchíín biłolbąs (16)
    A - F
    B - D
    C - A C E G
18. ashkii tsinaabąąs awéeshchíín yołbąs (3)
    B - C D
    C - A E F G
19. ashkii tsinaabąąs awéeshchíín łołbąs (4)
    B - D E
    C - A C F G
20. ashkii yiłołbąs (21)
    B - B D
    C - A C E F G
21. ashkii tsinaabąąs awéeshchíín niłbąs (7)
    B - B D
    C - A C E F G
22. awéeshchíín yołbąs (17)
    B - C D
    C - A B E F G
23. ashkii awéeshchíín biłołbąs (13)
    B - D
    C - A C E F G
24. awéeshchíín tsinaabąąs yiłolbąs (6)
    B - D
    C - A B C E F G
25. tsinaabąąs ashkii yiłołbąs (25)
    C - A C D E F G

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APPENDIX D

TOPIC-PROMINENCE IN NAVAJO

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Serious questions have been raised regarding the universal primacy of the category of 'subject' (cf. Li 1976), suggesting that for some languages 'topic' may be a more salient category. Li and Thompson (1976) have proposed a typological distinction between 'topic-prominent' languages and 'subject-prominent' languages, but at the same time note that evidence on some questions of diachronic development is "difficult to find, since none of the topic-prominent languages that we have investigated have well-developed anaphoric pronoun systems" (1976:487).

Navajo provides just such an example, and we present evidence to support the claim that a topic-oriented perspective on the language sheds light on a number of problematic aspects of Navajo grammar, including noun ranking and ordering restrictions, switch-reference in discourse, and certain apparent irregularities in verb classifiers.

Li and Thompson provided, in their discussion of characteristics of topic-pronominent versus subject-prominent languages, a checklist for use in deciding whether a particular language is (relatively more) subject- or topic-prominent. We will begin by comparing Navajo to this 'checklist' on seven of the eight characteristics discussed by Li and Thompson: verb final word order, dummy subjects, surface coding of topics and subjects, passives, coreferential deletion, double subjects, and constraints on the topic constituent. An adequate discussion of how topic-marking should be treated in the underlying representation of Navajo sentences is beyond the scope of the present study.

Like many topic-prominent languages, Navajo is verb-final, as illustrated in (1a-f):

(1a) Díí éétsoh nineez.
this coat long
This coat is long.

(1b) Bił́ł́' díí ł́ł́' bi'oh ánílts<u>o</u>.
his-horse this horse less-than-it relatively-big
His horse is smaller than this horse.

(1c) Mą'ii gałbáhí yich'į' dah diilgh<u>od</u>.
coyote gray-rabbit him-toward off he-started-to-run
Coyote jumped at the cottontail.

(1d) Éí mą'ii yiyiiłts<u>á</u>.
that-one coyote it-(he)-saw
Coyote saw that.

(1e) Gah yázhí díí táadi ákónídayiid<u>laa</u>.
rabbits little this three-times thus-back-they-did
The little rabbits did this three times.

(1f) Gałbáhí mą'ii yęę tsé yee yił ndajis'n<u>e'</u>.
gray-rabbits coyote that-was rock they-by-means-of-it
they-with-(at)-him they-threw-it
The cottontails threw rocks at coyote.

Navajo also lacks 'dummy subjects'. Like Mandarin and other topic-prominent languages, if a subject is not semantically necessary to a particular clause, there is no structural constraint requiring that the slot be filled. Such 'subjectless' sentences are illustrated by (2a-d):

(2a) Nineez.
long
It is long.

(2b) Níyol.
blow (pf.)
It (wind) is blowing.

(2c) Ligai.
white
It is white.

(2d) Naha txin.
rain
It is raining.

Navajo, again like Mandarin (Li and Thompson 1976:466) codes topics positionally, putting them in sentence-initial position, as in (3a-f). In this case, all examples are from Sapir's (1942) recording of the story of 'The First Louse'; the topic in each sentence is underlined.

(3a) Tązhii ąąhiłní, jiní.
Turkey$_i$, he referred to him$_i$, they say.

(3b) Nidóó, né'éshjaa'; hani nana'áadooleeł.
You also, owl; news you will carry about.

(3c) Gáagii, éi shí biłnaash'aashdooleeł.
Crow$_i$, that one I with him$_i$ will be wandering about.

(3d) Hazéists'ósii, éi bikiin, naasháadoo.
Chipmunk$_i$, that one on him$_i$ subsisting I will be going about.

(3e) Yaa', nit'éi, t'áadoobeechiini'inda.
Louse$_i$, you$_i$ alone are absolutely of no use to anyone.

(3f) Shídó', nahookáá' dinéé dooyaandaakaáigóó, shee'ék'idahalta'-dooleeł.
I, too, when peoples on the earth have nothing to do, with me they shall be keeping company.

In addition, topics may be followed by certain enclitics, particles, or by a special form of verb agreement, all of which serve to indicate something more specific about the function of the topic. When the enclitic éí follows the topic, for example, it serves a deictic function, as in (4a-b):

(4a) Baa' éí Kii bimá yiyiiłtsą.
Baa that-one Kii his-mother her-she-saw
Baa saw Kii's mother.

(4b) Kii éí diné nilį.
Kii that-one person he-being
Kii is a Navajo.

The emphatic particle láa indicates that the speaker is hunting only deer in (4c) and looking only for Mr. Neez in (4d):

(4c) Bįįh láa haashzheeh.
dee EMP I-am-hunting
I am hunting deer.

(4d) Hastiin Nááz láa hádadíníit'įį'.
Mr. Neez EMP we-are-looking-for-him
We are looking for Mr. Neez.

The particle hanii following a topic (5a-b) indicates both contrastive focus and negation (Schauber 1977:27-28):

(5a) Jáan chidi hanii yiyíiłchǫ'ígíí yínii'.
John car NEG he-wrecked-it-REL I-heard-it
I hadn't heard about John's wrecking the car.

(5b) Chidí hanii yiyíiłchǫ'ęę ashkii shik'ihodíí'ą́.
car NEG he-wrecked-it-REL boy he-blamed-me
It's not the boy who wrecked the car who blamed me.

Since hanii indicates contrastive focus as well as negation, its use as a topic marker is not surprising.

Noun plus relative clause can function as a topic, as in (6a-c):

(6a) Łééchąą'í dóó mósí ba'níłtsoodęę ahigą́.
dog and cat I-fed-them-REL they-are-fighting
The dog and cat which I fed are fighting.

(6b) Diné biłįį' t'óó ahayóígíí éí át'é.
man livestock much owns-REL that-one is-rich
A man who owns a lot of livestock is rich.

(6c) Shiye' łééchąą'í bishxashígíí deeshtał.
my-son dog it-bit-him-REL I-will-kick
I will kick the dog that bit my son.

In this case, the nominalizer/relativizer -ígíí (or -ęę for past tense) is suffixed to the verb of the topic clause. As Schauber (1977:147) has shown, -ígíí and -ęę require everything within their scope to be either anaphoric or factive.

In information questions (WH-questions in English), any NP or adverbial phrase may be the topic of the sentence, and is generally indicated by initial position as well as suffixing the question particle to the topic, as in examples (7a-b):

(7a) Tsésha' t'éiya haayit'éego si'ą́ ńt'éé'?
rock-Q just-it how it-being it-lies it-was
Just exactly how was the rock lying?

(7b) Tł'éé dą́ą́'sha' haa yínít'įįd?
last night-Q to-you it-happen
What happened to you last night?

Note that the topic need not, and in these examples does not coincide with (what is in English) the WH-word.

A noun phrase which functions both as receiver of the action (or 'object') and as the topic will also be marked both positionally and morphologically, but the morphological marking is of a somewhat different sort. Looking at examples (8a-b), łééchąą'í and ashkii are marked as topics by their sentence-initial position.

(8a) Łééchąą'í mą'ii biisxį́.
dog coyote he-killed-it
The dog was killed by the coyote.

(8b) Ashkii tó biisxį́.
boy water it-killed-him
The boy was killed by water.

The underlying 'logical' or clause-internal function as objects is indicated by the use of bi- as the third person pronominal prefix on the verbs; if they were agents, the prefix would be yi-, as in (8c-d):

(8c) Mą'ii łééchąą'í yiyiisxį́.
coyote dog he-killed-it
The coyote killed the dog.

(8d) *Tó ashkii yiyiisxį́.
water boy it-killed-him
Water killed the boy.

The passive translations of (8a-b) are somewhat misleading; the Navajo examples are not passives. Although these bi- constructions and English passives both express object orientation, the Navajo verb is marked as transitive, and the agent does not seem to be demoted, except positionally; agent agreement on the verb remains unchanged. We will return to object-topics (and the reason d is ungrammatical) in our discussion of topicality, noun ranking, and switch reference.

We have presented evidence that in Navajo, as in topic-prominent languages, topics are always coded positionally and/or morphologically. Li and Thompson (1976:466) note that in topic-prominent languages, subjects may or may not be surface-coded. In Lisu, Lahu, and Mandarin, the most topic-prominent of the languages discussed by Li and Thompson, there is no surface-coding of the subject, whereas in Japanese and Korean, which they regard as both topic-prominent and subject-prominent, subjects as well as topics are coded. Previous analyses of Navajo have considered verb agreement to be subject and object coding. While we do not dispute that agreement 'indexes' arguments of the verb, we are not convinced that it necessarily deals with 'subjects'.

All arguments are indexed on the verb. The forms of the affixes are basically identical, but are differentiated according to which prefix slot they assume; oblique objects precede direct objects, which precede agents. Since Navajo is verb-final, and word order is in some respects variable, this keeps NPs sorted as to function. As Foley and VanValin (1977) point out, there are a number of problems with applying any standardized notion of 'subject' to Navajo. In most clauses with two or more arguments, however, one argument can be identified as the 'agent'; we will therefore use that term in preference to 'subject'.

We would like to point out that there are some (albeit marginal) instances of topic agreement in Navajo. As Hale (1975:51-54) points out, verb stem choice agrees with object in transitive verbs, but of course with the only argument of the intransitive verb (called the subject by Hale).

(9a) (Nihí) ła' diidááł.
us one we-will-go[+sing]
One of us will go.

(9b) (Nihí) ła' doohááł.
you(pl) one you(pl)-will-go[+sing]
One of you will go.

Hale presents examples (9a-b) as problematic because the pronominal prefix on the verb is plural, while the verb stem is singular. If these examples are analyzed as topic-comment constructions the agreement, while unusual, can be explained quite simply: the plural verb prefix agrees with the plural topic nihí and the singular verb stem agrees with the partitive ła'.

Another example of topic agreement is (9c-d):

(9c) Hastiin gohwéédh bił łikan.
man coffee with-him it-is-sweet
Coffee is pleasing to the man/The man likes coffee.

(9d) Hastóí gohwéédh bił daalkan.
men coffee with-them it(pl)-is-sweet
Coffee is pleasing to the men/The men like coffee.

'Man' and 'men' are identified as topic-objects rather than agent by the form bił 'with-him' or 'with-them' rather than yił. The plural prefix on the verb in (9d) is thus unambiguously in agreement with the topic of the sentence; the verb stem again is singular, agreeing with gohwéédh 'coffee'.

In Li and Thompson's discussion of coreferential argument deletion, they state that "in a Tp language, the topic takes precedence over the subject in controlling coreference" (1976:470). A Mandarin example was:

Nèike shù yèzi dà, suǒyi wǒ bu xǐhuān _____.
that tree leaves big so I not like
That tree (topic), the leaves are big, so I don't like {*it* / **them*}.

Since Navajo pronominal verb prefixes are anaphoric (and obligatory), what occurs in Navajo is more appropriately called 'coreference of unspecified arguments', but coreference is controlled by topics rather than agents, and is essentially the same phenomenon.

In Foley and VanValin's (1977) examination of the behavior of Navajo (and two other languages) vis a vis certain properties observed by Keenan (1976) to be characteristic of subjects, they found that certain syntactic operations in Navajo (such as reflexive) make use of agents, whether or not they occur as the leftmost argument, while others make use of topics (which they termed 'referential peaks'). 'Coreferential deletion across a coordinating conjunction' (to use Foley and VanValin's term) is of the latter type, as exemplified by (10a-b) (examples from Foley and VanValin 1977:302):

(10a) Ashkii ch'énádzid dóó at'éédi yizts'os.
boy(A) woke-up and girl(P) kissed
The boy woke up and kissed the girl.

(10b) Ashkii ch'énádzid dóó at'éédi bizts'os.
boy(A) woke-up and girl(A) kissed
The boy woke up and the girl kissed him.

Unlike English, in which the deleted argument not only must be coreferential with the subject of the first clause, but must also be a surface subject (see examples 11a-d), in Navajo the unspecified argument in the second clause may have any role, as long as the referent is the same as that of the topic.

(11a) John$_i$ went up to Fred$_j$ and Ø$_i$ insulted him.

(11b) *John$_i$ went up to Fred$_j$ and he$_j$ insulted Ø$_i$.

(11c) *John$_i$ went up to Fred$_j$ and he$_i$ insulted Ø$_j$.

(11d) John$_i$ went up to Fred$_j$ and Ø$_i$ was insulted by him$_j$.

In examples (12a-b) the correct interpretation of pronominal reference on the second clauses requires the assumption that the topic has remained constant. The use of bi- as the object pronoun in (12a) indicates that it is the topic which is that clause's 'patient', whereas the yi- object-pronoun is (12b) indicates that the patient is not (also) the topic.

(12a) Łį́į́' dzaanéézˊ yishxash nít'ę́ę́' biztał.
The horse bit the mule and then it (the horse) was kicked by it (the mule).

(12b) Łį́į́' dzaanéézˊ yishxash nít'ę́ę́' yiztał.
The horse bit the mule and then kicked it.

That topics may control this kind of coreference should not be surprising. As Noonan has observed:

> Control of coreferential argument deletion or pronominalization does not depend on argument roles. Topics, which express the frame in which the rest of the sentence is to be interpreted are prime candidates for controlling such deletion... Sentence orientations that are not also subjects (i.e., topics) seem to be more likely to control coreference (c.f. the definiteness property...)" (1977:382).

The status of the 'double subject' criterion in Navajo is unclear. This construction type, according to Li and Thompson (1976:468), is the clearest example of topic-comment structure, since both topic and subject are clearly present, the topic has no selectional restructions on the verb, and the topic constituent cannot be considered to be derived via a movement rule. A few of Li and Thompson's examples are listed as (13a-c):

(13a) Sakana wa tai ga oisii. (Japanese)
fish top. red-snapper subj. delicious
Fish (topic), red snapper is delicious.

(13b) Nèike shù yèzi dà. (Mandarin)
that tree leaves big
That tree (topic), the leaves are big.

(13c) hɔ̃ na-qhɔ̃ yɛ̀ ve yɔ̀. (Lahu)
elephant top. nose long prt. declar.
Elephants (topic), noses are long.

Most, though not all of their examples are semantically of a genitive or partitive nature (which is not to deny their status as topic-comment sentences with both topics and subjects present). The Navajo partitive examples (9a-b) would thus seem to be examples of double subject-like constructions: both topic and 'subject' are clearly present, the form of the verb stem is determined by the partitive ła' rather than the topic nihí, and the topic cannot easily be analyzed as being syntactically derived from the subject. However, in the Navajo case verb agreement is with the topic rather than with what seems to be the only argument of the verb, ła', so that it is open to question whether these examples are syntactically equivalent to the 'double subject' sentences in Li and Thompson's analysis.

Chad Thompson (1979) cites an example from a Kutchin (Northern Athabaskan) narrative which does appear to be a double subject construction (13d):

(13d) Jii diich'ii' vigii ch'eekwee nąįį yeełkhwąįį.
this old-man his-son Eskimos pl. him-they-killed
The Eskimos killed this old man's son.

In this sentence, 'this old man' is clearly distinguishable from the logical subject and object of the sentence ('Eskimos' and 'his son', respectively), does not function as an argument of the verb 'kill', and so imposes no selectional restrictions on the verb. Moreover, the old man continues as the topic of the discourse. The occurrence and acceptability of parallel constructions in Navajo discourse requires further investigation.

Topic choices in Navajo, as in many languages, is semantically constrained by certain 'topicality conditions', but syntactically, the topic may be (or may be relatable to) any argument (or adverbial) in the sentance, in contrast to such subject-prominent languages as Indonesian, which restricts topics to surface subjects or genitives of surface subjects (Li and Thompson 1976:470). Examples (14a-i) illustrate something of the range of topics exhibited in narratives:

(14a) Tł'iish náhidiitah dóó gah yich'į' dah diilwood. (T-Agent)
snake up-he-sprang and rabbit he-toward-him off he-started-running
The snake sprang up and took after the rabbit.

(14b) Ńléé yílk'idígíí bine'jí diné ła' naaghá. (T-Goal/Locative)
yonder it-is-humped-REL it-behind-toward person a he-is-walking-about
There is someone over there behind that hill.

(14c) Díí tł'iish tsé hak'i si'ą́ą́ lágo ha'íníyáá. (T-Experiencer)
this snake rock him-on it-lies found-being him-on-I came
I came upon this snake pinned under a rock.

(14d) Ha'át'éego lá baa ntsínikees dooleeł. (T-Circumstantial)
how-it-being wonder it-about you-think it-will-be
What do you think about it?

(14e) K'adshą' ha'át'éego baa ntsínikees? (T-Time)
now-Q how-it-being about-it-you think
Now what do you think about it?

(14f) Biibee yisdádiínáał. (T-Instrumental)
with-this with-it-you-will-be-safe
With this you will be safe.

(14g) Tsé bee deiniilne'go dadiyiilghéél. (T-Instrumental)
rock with-it we-throwing-it-at-him we-will-kill-him
Let's kill him by throwing rocks at him.

(14h) Gahą́ yinijíiłhaz dóó yi'nii'aal. (T-Patient)
rabbit-aforementioned he-bit-it and he-started-to-chew-it
He bit the rabbit and started to chew it.

(14i) Dasinitsą́ągo yá'át'ééh. (T-Complement)
you-being-dead it-is-good
It is good that you die.

The 'topicality conditions' for Navajo are very similar to the 'saliency conditions' discussed by Fillmore (1977) for determining when some aspect of a scene is more likely to be brought into perspective, or foregrounded. Along with the 'saliency hierarchy', the verb choice determines the perspective expressed for English. For example, Fillmore points out that in describing a commercial transaction, if a speaker wants to bring the seller and the goods into perspective, he will use the verb sell; to bring the buyer and the goods into perspective, he will use buy and so on. In Navajo, verb choice is far less of a determining factor in the perspectives expressed, as can be seen in examples (15a-b), where the same verb stem -nii' is used for the English 'boy' and 'sell'.

(15a) Shilį́į' shaa nayiisnii'.
my-horse from-me he-bought-it
He bought my horse from me.

(15b) Shilį́į' bich'į' nahálnii'.
my-horse to-me I-sold-it
I sold my horse to him.

However, humanness, motion, definiteness, and totality, the conditions comprising Fillmore's 'saliency hierarchy', do constrain topic choice in Navajo, and applied to Navajo usage, may be viewed as 'topicality conditions' constraining what may be brought into perspective as a topic.

A primary means of foregrounding at the sentence or clause level, which has been illustrated in many of the examples thus far presented, involves placing the nominal in sentence-initial position. Noun ranking in Navajo has been discussed by Hale (1976), Creamer (1974), Witherspoon (1977), and others, and generally requires that a noun which is a member of a higher semantic category (e.g. human, animate) must precede a lower one (e.g. inanimate, abstract), no matter whether the grammatical role of the higher-ranked nominal is that of agent or patient. Examples (16a-h) are from Hale (1976:120-128):

(16a) Ashkii at'ééd yizts'ǫs.
boy(A) girl(P) he-kissed-her
The boy kissed the girl.

(16b) At'ééd ashkii bizts'ǫ́s.
girl(P) boy(A) he-kissed-her
The girl was kissed by the boy.

(16c) Łį́į́' dzaanéézˊ yiztał.
horse(A) mule(P) he-kicked-it
The horse kicked the mule.

(16d) Dzaanéézˊ łį́į́' biztał.
mule(P) horse(A) he-kicked-it
The mule was kicked by the horse.

(16e) Ashkii tsé yiztał.
boy(A) rock(P) he-kicked-it
The boy kicked the rock.

(16f) *Tsé ashkii biztał.
rock(P) boy(A) he-kicked-it
The rock was kicked by the boy.

(16g) *Tsísʼná ashkii yishish.
bee(A) boy(P) it-stung him
The bee stung the boy.

(16h) Ashkii tsísʼná bishish.
boy(P) bee(A) it-stung-him
The boy was stung by the bee.

Either 'boy' or 'girl' in (16a-b) or 'horse' or 'donkey' in (16c-d) may be the topic because each pair is of equal rank; in (16e-f) 'boy' but not 'stone' may be the topic, and in (16g-h) 'boy' but not 'bee', even though 'bee' is the agent. That such sentences cannot be considered syntactically passive has already been mentioned. There is another perhaps more compelling argument against a passive analysis for object-topic sentences, a semantic one which has to do with topicality conditions and the properties 'conferred' on topics in Navajo. The noun in perspective, whatever its intra-clausal function, is felt to be in control of the action (Witherspoon 1977) and this 'control' criterion appears to be more important for many Navajo speakers than the strict hierarchy of semantic categories according to such features as humanness and size which was described by Creamer (1974). Young (personal communication) reports, for instance, that sentences like 'The man was driving the car' or 'The man was riding a horse' will be accepted by many Navajo speakers with 'car' and 'horse' preceding 'man' if the man is understood to be drunk, and thus not in control.

There is considerable variation among Navajos concerning how much choice the speaker has in selecting the topic when nouns of different rank are involved, as illustrated by (17a-b):

(17a) Mósí awéé'chí'í yizghas.
cat infant scratch

(17b) Awéé'chí'í mósí bizghas.
infant cat scratch

These examples are from the Young and Morgan (forthcoming) dictionary. They presented several sentences to nine native speakers and elicited acceptability judgements. All nine accepted (15a), but there was divided judgement with respect to (15b). Young believes there is regional patterning in the judgements, with western Navajo speakers applying the noun ranking hierarchy more strictly than eastern Navajo. Thompson has reported quite a range of conditions on topicalization among other Athabaskan languages. Where any ranking constraints are present, however, they appear to conform to Fillmore's (1977:78) saliency hierarchy.

Far more problematic is the disagreement among Navajo speakers on perspective when one or both of the noun phrases is represented only thematically by the object pronoun. To briefly review the function of bi- and yi- in the examples given thus far, the yi- in (16a,c,e,g) indicates that the topic is agent, and the bi- in (16b,d,f,h) that the topic is patient.

We have analysed utterances which had been elicited from 107 Navajo first grade students in response to a series of pictures as part of a study we are now conducting of variation in Navajo child language (Saville-Troike 1979).[1] We submitted 325 of these responses to six adult native speakers of Navajo to obtain their judgements on the appropriateness and grammaticality of each. There was considerable disagreement among the judges about the acceptability of several constructions, including some occurrences of bi- and yi-. In response to a picture of a boy sitting behind a wagon and the question Ashkíísh háadi sidá? 'Where is the boy?', children's answers included (18a-d).

(18a) Ashkii yikéédi sidá.
boy behind seated

(18b) Tsinaabąąs bikéédi sidá.
wagon behind seated

(18c) Ashkii tsinaabąąs bikéédi sidá.
boy wagon behind seated

(18d) Tsinaabąąs yikéédi sidá.
wagon behind seated

All six judges agreed that (18a) means 'something is sitting behind the boy', with yi- referring to the object 'boy', and it was thus rejected. According to the rule given by Young and Morgan (1943:49):

> Yi- precludes the possibility of (the preceding noun) being taken as the subject of the verb, for it can only be the object. If the noun preceding the verb is the subject, then yi- is replaced by bi-....

In (18b), three of the judges agreed with Young and Morgan that bi- indicated that the noun preceding the verb must be the subject, and therefore rejected the sentence because it thus meant 'The wagon is sitting behind the boy'. The other three judges accepted the sentence as grammatical, however. Adding ashkii in (18c) made no difference in anyone's judgement. One of the six judges also rejected (18d), with the object followed by yi-. The three judges who rejected (18b-c) considered contiguous tsinaabąąs and bi- anomalous, but for the other three, their comments clearly indicated that the appropriate selection of bi- vs yi- was not dependent on what NP actually appeared in the sentence, but on what topic the speakers had in mind.

When children had been asked to describe a picture of a boy pulling a doll in a wagon, all of the judges accepted (19a) as meaning 'The boy is pulling the doll', but disagreed about who was pulling whom in (19b) and (19c).

(19a) Ashkii aweeshchiin yiłołbąs.
boy doll pulling

(19b) Aweeshchiin yiłołbąs.
doll pulling

(19c) Aweeshchin biłołbąs.
doll pulling

More information on the importance of unverbalized 'perspective' was provided with judgements of children's responses to 'Where is the boy?' when he was pictured inside a wagon. Both (20a) and (20b) were accepted by all adult native speakers, but there was considerable disagreement about the appropriateness of (20c-d).

(20a) Tsinaabąąs yii' sidá.
wagon in-it seated

(20b) Ashkii tsinaabąąs yii' sidá.
boy wagon in-it seated

(20c) Tsinaabąąs biyi' sidá.
wagon in-it seated

(20d) Ashkii tsinaabąąs biyi' sidá.
boy wagon in-it seated

The two judges who considered these sentences grammatical explained that the use of bi- meant the boy wasn't the topic, or the 'real subject' as they put it, but rather the topic was the picture that the children were responding to, and which had both the boy and the wagon in it. While this explanation does not contribute much to the regularization of a grammatical rule, it does very strongly suggest that what is salient in the speaker's mind must be considered part of the context within which grammatical rules are being applied and interpreted.

In narrative sequences, such as the numerous folkloric texts which have been collected, one of the most notable characteristics of NPs (whether referring to grammatical agents or objects) is their absence. An English translation must regularly use parentheses to keep track of who is performing the action on what or whom, as illustrated in this sequence of sentences from Sapir's (1942) translation of 'Horned Toad and His Corn Patch' (21a-c):

(21a) Áádóó, "Díish? Xa'át'íí át'é?" jiníigo bizóół bináázhdílnih, jiní.
Then, "This? What is it?" (Horned Toad) said as he also touched (Coyote's) windpipe, they say.

(21b) "Nógh^{W}e! Éi beeńdísdzih," ní, jiní.
"Keep away! I breathe by means of that," (Coyote) said, they say.

(21c) Ńt'éé' bich'ąą'k'ízhnígızh, jiní.
Then (Horned Toad) cut it off of him, they say.

In Navajo the 'perspective' is established with the scene as characters are introduced, and reference to each is thereafter made clear by the choice

of pronouns. (This 'perspective' is comparable to the 'point of view' established at the stanza level in Scollon's 1979 analysis of Northern Athabaskan narrative.) Not only does the switch between yi- and bi- signal a switch between reference to object and agent by signalling a switch between topicalized and non-topicalized object, but the so-called 'fourth person' (ji- nominative, ha- objective, and ho- possessive) is available to indicate yet another third person referent, or a change in the role of one who has already been named. Akmajian and Anderson (1970) say that this fourth person pronoun must always refer to the first of two preceding NPs; we would account for this ordering because it refers to the most topic-worthy of characters being discussed--usually the hero, and hence fits at the top of Fillmore's saliency hierarchy. In the story of 'Horned Toad and His Corn Patch', for instance, Horned Toad is the first character introduced, and is recognized in (21a-c) by use of the 4th person pronoun; Coyote is referred to in the third person.

In (22), a complex sentence from 'The Coyote and the Snake' translated by Young and Morgan, bi- refers to 'snake' as object of both the rock falling and the rabbit finding, and yi- to 'snake' (agent) under 'rock' (object). Fourth person ha- is used here by donkey to refer to rabbit, who is being given deference.

(22) Gah tsétahgi joolwoł ńt'éé' tł'iish tsé bik'iilts'id léi' bik'íjílwod lá, dóó tséhęę nahgį' adziił máazgo tł'iishęę tsé yiyaa hanáá'na' dóó tł'iish ndeeshghał hałníigo hach'į' dah diilwod lá.

rabbit rocks-among-at he-is-running-along it-was snake rock him-on-it-fell some him-on-he-ran found and rock-aforementioned one-side-to away-he-having-rolled-it snake-aforementioned rock he-under-it out-back-he-crawled and snake you-I-shall-eat he-saying-to-him him-toward off he-started-to-run found.

The rabbit was running along among the rocks when he came upon the snake pinned under a rock. When he rolled the rock aside the snake crawled out from beneath it and took after him saying that he was going to eat him up (donkey speaking).

The sequence of sentences in (23) illustrates the use of this switch reference in a Chiricahua Apache text (Hoijer 1938), where 'Child of Water' is the hero and 'Giant' the reference of bi-:

(23) Baanáshn'ą́ná'a.
He (Child of Water) took it away from him (Giant).
Kaanáyin'ą́ná'a.
He (Giant) took it away from him (Child of Water).
Baanáshn'ą́ná'a.
He (Child of Water) took it away from him (Giant).
Kaanáyin'ą́na'a.
He (Giant) took it away from him (Child of Water).
Dásígózhǫ́go, dį́į́nnán iłdénánájóó ánáʼa.
In just this manner, they passed it between themselves exactly four times.

Sapir (1942:42-43) recorded a switch from third to fourth person pronoun in reference to the same person when he is being upgraded to hero of the story (24):

(24) Shizhé'édó' naagháagi shiłbéézin," ní, jiní. Aadóóshį́į́, "tsédeez'á hoolghéegi, shíni' hazlį́į́'. Né'éshdzaa' sineesą́, dideeshniił, shomá baanáńsdzáago, shizhé'édó', biłhodeeshnih," jiní, jiní. "Lą́'ąą'! Jó'ódó't'éélá! K'ad, nłch'óhodeesh'áát," hojiní.

I know that my father too is living," he said, they say. And then, "At the place called Rock-extends, my mind came into being. The Owls raised me, I shall say. When I go back to my mother, (to) my father too, I shall tell them about it," he (boy) said, they say. "Very well! It is so! Now, I shall make something known to you," said (Owl) to him.

The change comes when the boy says 'my mind came into being', and he realizes who his parents are.

The final aspect of Navajo grammar we would like to consider in terms of the topic of discourse is the so-called 'classifier'. The classifier immediately precedes the verb stem, and is preceded by various other tense, mood, personal, thematic, and directional prefixes, whose number and identity is in dispute (Hoijer 1945, Kari 1973).

The Navajo classifier can occur in four forms. Two are usually phonetically evident as distinct segments: ł and l; the other two must be inferred: Ø by the absence of any evident features, and D, by its phonetic effect on the following segment. Essentially the same forms occur in all extant Athabaskan dialects, and have been reconstructed by Krauss (1965) for the proto-language. He describes their distribution as *Ø mainly in transitive, intransitive, and neuter forms, *de (Navajo D) mainly in corresponding passive, mediopassive, reflexive, impersonal, customary, and iterative forms, *ł mainly in transitive and causative forms, and *łe (Navajo l) mainly in corresponding passives.

Their distribution in terms of the analysis we are proposing here may be summarized as in (25):

(25)

	(Basic) Intrans/Trans	(Derived) Trans/Caus
Agent in Perspective	Ø (none)	ł
Patient/Action in Perspective	D	l

The primary problem which classifiers have presented for traditional analyses is a residual 'irregularity', despite the fact that the same 'exceptions' appear to be remarkably consistent throughout the language family and through time.

Some apparently complex exceptions relating classifier occurrence to person and aspect have been explained (Higgins 1974) as the result of rather general surface level phonological processes. Still others may be eliminated as exceptions if a misleading English gloss is restated as in (26) to express the Navajo concept that certain events (e.g. having babies, aging, and drowning) are caused, and thus require derived linguistic structures:

(26a) Díí ashtzání l'ałchí.
This woman has children → This woman causes birth.

(26b) Są́ bi' niiɬxį́.
He's getting old → Age is (progressively) killing him.

(26c) Ashkii tó biisxį́. (s = si + ɬ)
The boy drowned → Water killed the boy.

Harder for the English-speaker to understand is any derived causality in sentences such as (27a-b):

(27a) Yiɬkaa.
Day is dawning.

(27b) Íɬhosh.
You are sleeping.

Reichard and Bittany (1940.11) have suggested that the ɬ in yiɬkaa 'day is dawning' may be explained by a Navajo concept that some unnamed force must cause the passing of night. Hoijer and other structuralists have rejected such mentalistic explanations, but such a force might well be included in the culture-specific presuppositions that would be more acceptable in recent theory. It is certainly not necessary that the (presumed) 'real agent' be verbalized, as we have found in our study of children's Navajo. The concept of an unnamed force causing sleep is also plausible; in this case, sleep itself may be the agent, as it is in the Tlingit example recorded by Boas (28), in which the suffix -tc is unambiguously an agent marker.

(28) 'ax̱wé t'ɑ́tc 'ùwadjáq' ducát'
this sleep struck-her his-wife
His wife fell asleep.

A general rule that would thus far appear to account for the function of ɬ is that it identifies the verb that follows it as having an agent to which responsibility and control may be attributed, and that it makes that agent the topic of the sentence, putting it in perspective or placing the focus of the utterance on it. To further illustrate this point, in (29) we have shown examples of ɬ in sentences from two Coyote stories translated by Young and Morgan:

(29a) Gałbáhí mą'ii ndilchą́ą'go dayiiɬtsą́.
gray-rabbits coyote he-smelling-about they-saw him
The cotton tails saw coyote sniffing around.
(Rabbits saw coyote)

(29b) Gahą́ą yinijíiɬhaz dóó yi'nii'aal jiní.
rabbit-aforementioned he-bit-it and he-started-to-chew-it it-is-said
He bit the rabbit and started to chew it.
(Coyote bit rabbit)

(29c) Tsé gah bikágí bii' shijaa' yę́ę yiníjíiɬhazgo bighoo' ałtso neistseed jiní.
stones rabbit its-skin in-it they-are aforementioned he-having-bitten-them his-teeth all he-killed-them it-is-said
When he bit the stones that were inside of the rabbit hide, he broke all of his teeth.
(Coyote broke/killed teeth)

(29d) Lą'í yiskánídą́ą́' díí tsé shik'iilts'id ni' áko t'áá íiyisíí dichin shi'niiɬhį́.
many dawns-ago this rock me-on-it fell recall so just extremely hunger me-it-has-begun-to-kill (snake speaking)
Many days ago this rock fell on me and I am starving.
(Hunger killing snake)

(29e) Áádóó, gah tsé́hę́ę nahjį' ayíiɬmááz jiní.
there-from rabbit rock-aforementioned one-side-to he-it-rolled (away) it-is-said
Thereupon the rabbit rolled the rock aside..
(Rabbit rolled rock)

The so-called 'Ø classifier' may in fact simply be the absence of any classifier, and imply that no controlling agent is present and that no other nominal has been foregrounded to serve as topic. Verb stems which lack a classifier include intransitives with an inherent lack of strongly marked motion or action, such as 'walk', 'stand', and 'die', and others indicating 'basic' natural processes or states: 'shine', 'urinate', 'wake', 'sit'. Other verbs lacking a classifier include transitive classificatory verbs which incorporate the type of movement and the shape or consistency of the object in the stem itself.

The functional parallelism of the classifiers D and ɬ is symbolized phonetically by the fact that they share a common feature of voicing. Voicing the classifiers indicates that perspective or focus is not on the agent, but that the patient or action is being foregrounded. In fact, the ɬ and D 'passives' cannot even occur if a responsible agent is named. Haile (1951) reports on his attempts to elicit corresponding Navajo passive forms for 'I was thrown by a horse' or 'I was bitten by a snake', but his informants refused to give him anything other than the active forms ɬíí' nashíiɬgo' 'the horse threw me down' and tɬíish shishxaash'a snake bit me'. He succeeded in eliciting the passive form only when an agent was not expressly mentioned, as in (30) (examples from Young 1960):

(30a) Tsé shaa yiť'ą́. (D classifier)
The rock was brought to me.

cf: Tsé shaa yiní'ą́. (Ø classifier)
He brought the rock to me.

(30b) Agaa' haaɬjool. (ɬ classifier)
The wool was carried up out.

cf: Aghaa' hayíiɬjool. (ɬ classifier)
He carried the wool up out.

Another way of thinking of the situation is in terms of control. The importance of the concept of 'control' to the grammar of Salish and Kiowa-Tanoan has already been established by Thompson (1979) and Watkins (1979) respectively, as has its relation to noun ranking in Navajo (Witherspoon 1977). The attribution of control (or its absence) in an event may also be seen as a factor in the voicing of classifiers. Note the classifier change in examples (31a-e), in which Young (1967) is illustrating intentional causation as opposed to accidental or 'uncontrolled' events:

(31a) Shich'ah nááłne'.
I dropped my hat (intentionally).

(31b) Shich'ah naaltsid.
My hat fell (accidentally).

(31c) Ashkii yi'oł. (ø classifier)
The boy is floating along.

(31d) Ashkii 'oo'oł.
The boy is causing (a boat) to float along.

(31e) Ashkii bił oo'oł.
Something is causing (a boat) to float along with the boy.

In (31a) the agent is in perspective (who intentionally dropped the hat), while (31b) perspective is on the action, with no responsibility implied. In (31c) the experiencer, 'boy', is in perspective as the one floating along, while (31d) is derived with the boy causing something to float along, but 'boy' still in perspective, and (31e) is passivized with 'boy' again the topic, but here not the agent in the sentence.

One problem in the traditional designation of D and l as 'passive' markers has been their occurrences with verbs like 'run', 'creep', 'crawl', 'sniff', 'smile', 'hunt', 'step', and 'move', as in (32a-i).

(32a) ... dah diilghod
he toward it off he started to run

(32b) yilghoł
he is running along

(32c) yi'nah (D classifier)
he is creeping along

(32d) yaa nii'na' (D classifier)
he crawled up to it

(32e) ndilchęę'go
he's sniffing around

(32f) bich'į' ch'ídeeldlo'go
toward them he having smiled

(32g) ńléigóó diit'ash diilzha
over yonder we shall go (and) hunt

(32h) t'ááshikék'ehgóó ndadíltaał
right in my footsteps you must step

(32i) bikee' hidees'naá' (D classifier)
his foot moved

Voiced classifiers occur with a class of verbs that may be characterized as having inherent motion, and with other verbs when there is explicit directionality to the action (i.e. when the direction or goal is 'in perspective' or topicalized). These cases may thus be seen to be congruent with our topic-oriented analysis. Again, focus is not on the agent (if there is one), but on the action or its goal.

Summary and Conclusion:

We have seen that, using Li and Thompson's checklist of topic prominence as a measure, Navajo shows a number of the characteristics of a topic-prominent language. It has verb final word order; it lacks a dummy subject; it indexes topics on the verb and marks them with leftmost position in the clause as well as with emphatic elements and other morphological means; it has only a very limited passive; it allows coreferential deletion under agreement with the topic rather than 'subject', and it constrains topic choice on semantic grounds similar to Fillmore's 'saliency conditions' for foregrounding, but syntactically allows almost any type of argument to the verb to serve as topic.

In a study we recently completed of adult native speaker reaction to the acceptibility and grammaticality of variant forms found in a sample of children's elicited speech, we found surprising and dramatic variation in adult judgements, some of it related to geography, but some of it involving unstated discourse presuppositions in the mind of the speaker which could determine the identification or interpretation of the topic in a sentence. Young and Morgan have found similar variation in judgements on noun ranking in Navajo. It is clear that published accounts of noun ranking are subject to considerable regional dialectal variation, and that discourse considerations of topicalization or foregrounding may also enter in. All of this suggests that grammatical investigations must be sensitive to sociolinguistic and regional differences, as well as to discourse patterns and constraints. As Chad Thompson (1979) has noted in an important paper, "syntactical issues in Athabaskan are closely interconnected with morphological and discourse ones", so that "it is probably impossible to gain a clear and total insight into any of these three levels without reference to the other two."

As an example of this, the analysis of Navajo as a topic-prominent language provides a new perspective from which to re-examine a long-standing problem area in Athabaskan linguistics--the classifier system. While a topic-oriented analysis does not answer all questions, it does permit a more unified approach to understanding the function of the classifiers, and we have here given some examples. In particular we have shown that a change in classifiers may indicate a shift in topic. The concept of control may also prove to be useful, as it has in Salishan, for understanding and interpreting some of the interactions of topic and classifier. A topic-oriented approach also provides motivation for the rule that the 'honorific' fourth person prefix ji-/ha-/ho- must come first, since it usually refers to the most topic-worthy of the characters in the context.

We believe we have presented sufficient evidence here to demonstrate that Navajo exhibits topic-prominence, and we have shown that this perspective, free of the hindrances of the traditional subject-oriented approach, can lead to a deeper and more integrated understanding of a variety of phenomena in the language.

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Footnote

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APPENDIX E

Paper presented to the American Association for Applied Linguistics
Los Angeles, California
Dec. 27, 1979

THE BE CREATIVE:

STAGES IN THE ACQUISITION OF ENGLISH BE BY NAVAJO CHILDREN[1]

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The presentation I am going to make to you this morning is a report on one aspect of my current research on Navajo children's language: their perception, interpretation, and use of forms of be as they are learning English as a second language. Their first language lacks any overt copular verb construction, so minimal structural interference would be predicted.

Navajo is spoken by more people than any other Native American language in the U.S. According to the 1970 census, it was the only Indian language being learned by more preschool children then than a decade before, and this trend continues. My present research is on the language of children in the earliest stages of their formal education. The data I am analyzing consist of tape-recorded interviews with 107 first grade students from four BIA schools in the Navajo area: Cottonwood and Greasewood in Arizona, and Sanostee and Toadlena in New Mexico. The data were collected several years ago while I was involved in the development of bilingual curriculum materials for the BIA, but I have only recently had the data available for analysis.

Each of the subjects was interviewed in both Navajo and English in September and again in May using an interview format and questionnaire which I developed. The interviewers were all bilingual speakers of Navajo and English, either teachers or aides in the four classrooms. Each interview consisted of about fifteen minutes of tape-recorded responses, producing a total of about sixty minutes per subject, or approximately thirty minutes in Navajo and thirty minutes in English for each of the children.

All of the subjects had attended a kindergarten in which Navajo was the primary language of instruction, and had received only twenty to thirty minutes a day of ESL for part of the year. None of the children attended school during the summer, and one hundred of the one hundred and seven reportedly had little or no English used in their homes. During the year in which these data were collected, they continued receiving ESL instruction--primarily pattern practice and then games or other activities which made use of the vocabulary and patterns in a somewhat less structured way--and were additionally supposed to receive up to one half of their content instruction in English.

On different days, children were shown a series of pictures and asked questions, in Navajo on one day and English on the other. The following interview procedure was used. The children were shown samples of nine colors and a series of thirty one pictures illustrating various objects, states, and activities in order to elicit comparable lexical and grammatical forms. Vocabulary and pronunciation will not be of concern to us here.

The eighteen grammatical items were selected in large part to elicit Navajo forms that were of interest. At the same time, the English form of the interview elicited five patterns that were being taught in both kindergarten and first grade ESL: 1) positional relationships, 2) actior in progress, 3) plural subjects acting, 4) completed action, and 5) future action. Additionally, five items in the questionnaire were intended to require children to use longer utterances and provide a brief text for the analysis of free speech.

First, I would like to compare the children's production of the patterns in English and Navajo, and then compare their use of <u>be</u> forms in the patterns vs. 'freer' speech.

To elicit expressions of positional relationship, the children were asked 'Where is the boy?', as they were shown four pictures of a boy in a wagon, in front of a wagon, in back of a wagon, and under a table.

To respond 'The boy is in the wagon' in Navajo, the word order would be:

Ashkii tsinaabąąs yii sidá.
boy wagon it-in seated

All parts of that sentence may be deleted in response to a question except the postpositional phrase, since the question and picture make it clear what is being talked about.

In English, too, we would expect only 'in the wagon', 'under the table', etc., from native speakers, but it is interesting that by the end of first grade most children responded with the 'complete' pattern learned in ESL:

The boy is in the wagon

or NP be Locative Phrase, rather than the elliptical contextual form.

At the beginning of first grade, most children either did not answer, or responded to the English question in Navajo.

The most common English response in the fall was the verb sit or sittin', with a preposition alone next most common (often not the appropriate one), then boy in wagon. Is occurred most frequently as a connector between objects, as the boy is wagon or the boy is table, and sometimes just the boy is. Is and preposition occurred contiguously in only two cases.

In addition to the patterned response learned in ESL, children in the spring frequently included the verb sitting: either the boy is sitting in the wagon or the boy is under the table sitting, and a few continued to use is as a connector, although adding determiners quite consistently by now:

The boy is the wagon.

There was influence from Navajo word order in a few instances:

The boy is table under.

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The boy is the wagon.

There was influence from Navajo word order in a few instances:

The boy is table under.

To elicit expressions of action in process, the children were asked 'What is the boy doing?' as they were shown pictures of a boy carrying a stick, playing with blocks, and eating. The most common Navajo response is verb only:

naané 'playing'

ayaa' 'eating'

The progressive nature of the action and the presence of an object are marked by verb prefixes in Navajo, but many of the children have not yet learned these forms in their first language. The Navajo response can optionally be expanded to

Ashkii aweeshchiin yił naané 'boy doll with-it playing'

'boy', the name of the object, and then the verb. As an aside, these expanded sentences sound a bit odd or unnatural to adult Navajos who do not teach school "because you already know what you're talking about", but "responding in complete sentences" is not limited to English in bilingual education. A 'school register' of Navajo has already developed, and most children use the full, unnatural forms of their first language, too, in this kind of a formal elicitation context.

The most common fall response in English is also a single verb: play, eat, and less frequently playing, or eating. This differs markedly from the most common response at this stage from Spanish-speaking children, which would be boy, or the name of some other object in the picture. Next most common in frequency was boy eat, and boy play. Most common in the spring is the boy is playing or the boy is eating, which was the pattern taught in ESL.

Judging from approximations of this pattern, the children were interpreting the is is two different ways: some used it as a connector, as they did in the

locative expressions, saying boy is play, boy is eat, and boy is stick. Others interpreted the is as going with the verb, and many responded is play or is playing without mentioning the subject. The contracted form of this makes these interpretations clearer, since some perceive the -s as belonging on the end of the noun and some on the front of the verb. A relatively common single word response was splay, or splaying. A double copula also occurred as the full form of is was added to one or the other interpretation of the contraction, yielding is splaying, and perhaps accounting for some apparently inappropriate uses of the plural, as boys is play for one boy.

The picutres which were intended to elicit plural forms were of two children playing with dolls, and two children eating. Navajo does not inflect nouns for plural, but does mark number on the verb.

Again, the most common response was verb only: play, playing; eat, eating.

The children who attempted to express the plurality did so mainly by using the word children (children play instead of boy play). The form of be rarely changed: children is play. Plural forms also included:

Boy girl play

Boy play girl play

The boy the girl is playing

The boy is the girl is playing

The boy is playing the girl is playing

Continued interpretation of be as a connector was possible with the plural, yielding such responses as:

Boy are girl play (and)

The children are doll

I will skip over past and future quickly, because there is little to report. In the fall, no child appeared to notice the shift of tense in the

question and all responded as they had for the present. In the spring, about half of the children exhibited their recognition that a different response was appropriate by either remaining silent or answering in Navajo. No child changed is to was; two who heard English at home added finish as perfective marker: the boy is finish playin.

To express future, a few children substituted go for is: the boy go playing, or added go in sequence: the boy is go play.

To elicit freer language responses, the first picture shown was of a family, and the stimulus question was 'Tell me about this picture'. The preferred Navajo response would translate roughly: 'father and mother baby up they're holding it'. As opposed to responses to questions where the topic is included in the question, naming the objects in the picture is considered quite appropriate here, but they must be joined by conjunctions or are considered ungrammatical: e.g. father and mother and baby was an acceptable (and common) response.

In spite of the fact that vocabulary had regularly been presented in ESL with the pattern 'This is a _____ ', only two of the one hundred seven children used that structure in this context.

The most frequent use of is was as a conjunction, usually mother is father is baby, but also the baby is the mother , daddy mother is baby , the lady is the man , etc. Occasionally is served as a connective between subject and predicate, as in the mother is has baby .

In a few cases, children either omitted the conjunction or used Navajo dóó and placed is at the end of the sentence: father dóó mother dóó baby is . This did not occur in the patterned responses, but probably respresents the interpretation of is as analogous to the emphatic optional verb at'e in Navajo, which does occur in final position of equational or attributive sentences;

e.g. 'the man is a doctor' → man doctor at'e, or 'the man is tall'→ man tall at'e, meaning roughtly 'he certainly is'. Verbs occurred more frequently with is in the spring than in the fall, but both sentences like the mother playing the baby and the mother is playing the baby were fairly common.

Two pictures were intended to elicit primarily locative responses: a man on a horse and a drum and doll under a table. Again, the use of is as a conjunction was common:

Cowboy is horse

Doll is drum under the table

Doll is drum is table

Prepositions were common, but seldom cooccurred with is

The man on the horse

Doll under table

although they could be in the same sentence.

The man is sit on a horsie

The man is hat on a horsie

Is occurred with verbs almost as frequently as in the patterned responses, and one child even used it with a future marker.

The man is go horse

I must admit at this point that my interpretation of what children meant by is was not always confident, and I suspected some had just learned some little English words and inserted them more or less at random when I heard such sentences as The boy is horsie is sitting and the walking.

The final two pictures were intended to elicit more complex arguments: one of two cats, one playing with a ball and one eating (or drinking, depending on how the picture was interpreted), and one of a boy pulling a doll in a wagon.

For the former, children responded much as they did in Navajo, with two separate clauses:

Kitty eat ... kitty play

Cat is eating ... cat is playing

The plurality of cats was expressed by some as a noun inflection on each

The cats is eating ... the cats is playing

or by enumerating.

Cat is two cats--eat ... play

One child said

The cats are eating and playing

and one other used are to indicate plurality in the compound verb phrase.

Cat eating are playing

Some of the children got quite creative in their story telling by this point in the interview, and the one occurrence of was was in the sentence

Cat was singing grandma and the cat him is playing.

The children's most frequent strategy for handling the complexities of a boy pulling a doll in a wagon was quite interesting vis a vis the topic-comment construction so common in the traditional Navajo narrative discourse genre of story telling. They first enumerated the 'characters'

Boy doll wagon, or

Boy is doll is wagon

and then said something about them, such as

the wagon going

the boy is pulling the wagon

the boy is playing

the doll in the wagon, etc.

To quickly summarize the findings discussed above, we have seen that be forms are initially omitted, and then go through differential development depending on context. Full forms occurring in be-ing constructions are reinterpreted as aspectual prefixes in a verbal complex similar to Navajo (e.g. boy he-is-play for the boy is playing); contracted forms as an s prefix on the next word (e.g. boy splay for the boy's playing); be between NPs as a conjunction (e.g. boy is girl is dog for boy and girl and dog). Locatives may involve a change in word order (e.g. boy table under for the boy is under the table), and predicate adjective constructions may be followed by be interpreted as the equivalent of at'e 'it is', optionally used for emphasis in Navajo.

One of my main objectives this morning is to underline the complex factors involved in eliciting--and interpreting--the language of children. Not only does the context of elicitation make a difference, but the fact that there is a wide range of variation in the language produced by children in the same context is quite apparent whenever qualitative analysis of a large quantity of data is attempted; it should be remembered that most studies we have are restricted to just a few children. Perhaps most importantly, we must bring pragmatic and discourse considerations into the analysis of grammatical development; even so, however, we cannot ignore the potential and actual influence of first language structures and strategies in interpreting second language data in our rejection of earlier excess reliance on the explanatory power of 'interference phenomena'.

In the data I have presented this morning, there is clear evidence of Navajo children interpreting a new linguistic structure--the verb to be--in part in terms of partially comparable structures in their own language, as well as in terms of incomplete learning and overgeneralization within English.

The interplay between first and second language development may be particularly crucial when the first language is Navajo, and its extreme morphological complexity is far from mastered by children entering school.[2] I would suggest that schools might well postpone adding further complexity to the language learning process by postponing the introduction of English two or three more years, but that is a topic for another occasion.

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[2]For a report on the acquisition of Navajo as a first language by the same subjects, see Muriel Saville-Troike, 'Synchronic Variation in Navajo: Regional and Developmental Evidence from Child Language', paper presented to the American Anthropological Association meeting, Cincinnati, November 1979.